# BUILDER

THE WORLD'S GREATEST BUILDING PAP

APRIL 1952

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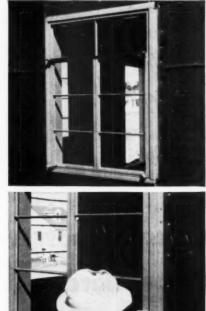
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#### INSIDE and OUTSIDE

### YOU SAVE BUILDING TIME AND LABOR WITH Fenestra READY-TRIMMED WINDOW UNITS

Sash, frame, hardware, inside trim, outside trim-all in one modern unit that comes to the site completely assembled for easy handling, quick trouble-free installation! Now all standard sizes of popular Fenestra\* Residence Steel Casements are available in this new time and money-saving package.

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AMERICAN BUILDER

## AMERICAN UNDER

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with a "FLEX CORE"

...has a simple, sound assembly for maximum strength and durability yet is made to meet the price market.

This adaptation of the hollow-core principle meets the demand for high quality and low cost. This is another engineering achievement by HASKO for the builder who needs better flush doors, It is truly an economy door of outstanding quality.

**LOW COST** The HASKO "MOBILE" FLUSH DOOR is priced competitively, and is made and backed by a responsible manufacturer.

QUALITY GUARANTEED The HASKO "MOBILE" FLUSH DOOR carries the same guarantee and responsibility as the famous Hasko Arch-Kor Flush Door. It features "balanced" construction, and the warp-resistant, sound deadening and proper ventilation characteristics engineered into all Hasko Flush Doors. Its frame is constructed of selected kiln dried lumber and allows a generous amount of stock for trimming, plus sturdy 3/16" thick face panels.

**8-WAY HANGING SPEEDS INSTALLATION** Large 3x 25 (5x 25 including frame) double lock-blocks provide for fast, easy 8-way hanging of the HASKO "MOBILE" FLUSH DOOR.

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The entire core construction provides complete support of the
sturdy (3/16" thick) face panels. An additional feature of the
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resiliency and flexibility that give the face panels an unusually high
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No builder in his right mind would include appliances in the houses he builds unless they attract more prospects . . . make houses easier to sell ... reflect the quality of his houses. And that is just what appliances do!

We have just completed a country-wide survey of purchasers of Westinghouseequipped homes. The results bear out the wisdom of equipping houses with Westinghouse Appliances. They prove conclusively that the appliances were a dominant reason for buying these homes. They reveal what appliances people want and how they want them financed.

We believe the information will be valuable to you. Send the coupon below, we'll rush a copy to you.

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# Even the Lowest-Priced Houses Can Afford These Three NuTone Products

Let the NuTone Package make your low cost houses MORE ATTRACTIVE, MORE COMFORTABLE and MORE SALEABLE!

For only \$84.95 or less (at list prices) . . . the NuTone Package gives you the "edge" over competition . . . because the NuTone Package "dresses up" your homes . . . with ALL 3 NUTONE PRODUCTS . . . A NuTone Ventilating Fan, to eliminate kitchen grease and cooking fumes . . . a NuTone Door Chime for a friendly musical greeting at the front door . . . and a NuTone Heat-A-Lite, the revolutionary new Electric Ceiling Heater and Light, to make bathrooms "toasty warm."



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THE ANSWER IS . . . THEY'LL BUY YOUR HOUSES WITH

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The NuTone package includes Model 800 NuTone Ventilating Fan at \$27.75 list (or Model 830 NuTone Ventilating Fan at \$26.50 list); a NuTone model K-16 Door Chime at \$7.25 list; and a NuTone Heat-A-Lite Model 900, at \$49.95 list - ALL INDIVIDUALLY PACKAGED.

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Turn the low cost housing market into YOUR MARKET . . with the NuTone \$84.95° pockage. Write today for complete details about this plan, including free literature, diagrams, specifications and data for installing NuTone Ventilating Forms, Door Chimes and Electric Celling Heaters.

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# WIDER HEAT RANGE

### in 5 New Furnaces

added to COLEMAN

Blend-Air.



## -GAS-

#### 3 NEW MODELS

(Natural, Mfd., Mixed, LP-Gas)

#### 75,000, 100,000 and 125,000 BTU input

Factory-assembled complete with rugged combustion chamber, burner, blower-motor unit, inner casing—all enclosed in beautifully styled cabinet. Internal wiring ready to connect to thermostat and house service. Controls factory-installed, conveniently located in vestibule compartment. Unusually compact for models of this capacity, assuring outstanding performance to suit every home. Approved by American Gas Association.



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#### 2 NEW MODELS

80,000 and 97,000 BTU output

They take unusually small floor space to give dependable heating performance at low operating cost. Equipped with Coleman gun-type burner. Smartly designed with neutral tan baked enamel finish. Filter frame removable to either side for flexibility in installation. Other Coleman features: Even-Flo Blower Unit, Exclusive Coleman Draft Meterand Chimney Grown, completely automatic Control System for trouble-free operation. Listed under label service of Underwriters' Laboratories.

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#### 1. MAGIC BLENDER

in each room blends room air with freshly heated furnace air right in the wall, then RE-circulates for even warmth.



#### 2. 314-INCH HEAT TUBES

carry freshly heated air to Blenders. Small enough to fit any construction, old or new.



#### 3. BLEND-AIR FURNACE

with fresh air intake uses up as little as 6 sq. ft. of floor space anywhere-basement, closet, utility room,



now make it possible to equip more homes with the revolutionary, low-cost Blend-Air Heating and Ventilating System. Users everywhere praise its low-cost performance and evenly distributed automatic comfort — it's the kind of heating performance customers are willing to buy—makes homes easier to sell. Send coupon for complete information. The Coleman Company, Inc., Wichita 1, Kansas.

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Please send complete informati	on on Coleman Blend-Air.
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Street	
City	State





MICARTA panels come in four sizes to eliminate almost all waste. 24" x 96" ... 48" x 96" ... 30" x 60" ... 30" x 96", (All 38" thick)

Experience is proving that when the "Better Half" of the home-buying couple spots MICARTA-topped surfaces in kitchens and bathrooms she quickly jumps to the salesman's side.

There's a reason. She knows from national advertising on Television and in Better Homes & Gardens that MICARTA'S® tough, super-smooth surface requires just a swish of a damp cloth to keep it sparkling clean. In her mind's eye she has matched MICARTA'S full-range of decorator colors with her own personal color scheme.

The "Other Half" wants his money's worth ... and so do you. Tell him MICARTA will last a lifetime, never needs to be replaced. Your "money's worth" comes in the form of MICARTA pre-bonded to plywood for easier, faster installation by any good carpenter.

Add the "housewife appeal" of MICARTA to your own savings in time and labor, and you'll agree with other builders that MICARTA is a "smart, effective salesman".

J-06473

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# Biggest value in hardwood floors

 Specify prefinished Bruce Strip Floors to give owners more value for less money.

The factory-applied finish brings out all the natural beauty of the wood . . . doesn't cover up or discolor the grain. Tests have proved it will outwear surface finishes at least 3 to 1. And housewives find their prefinished Bruce Hardwood Floors far easier to keep clean and beautiful.

The cost of this modern hardwood flooring is usually less than the same grade of unfinished flooring plus the expense of onthe-job finishing. There's a saving of 3 to 5 days' time on every house because there's no sanding and finishing, no holding up the work of other trades. Write for complete information on prefinished Bruce Strip Floors. See our section in Sweet's File.

# Bruce Bruce Prefinished

STRIP FLOORS

PRODUCT OF E. L. BRUCE CO., MEMPHIS 1, TENN.

World's largest maker of hardwood floors

#### A New American Builder Service

THIS issue of American Builder is the first complete catalog and reference data book ever prepared for the entire light construction industry. Its function is two-fold. First, it contains a directory of building products arranged alphabetically, and with supplementary listings and other information to facilitate use. Second, it contains a wealth of reference data material on the use of most building products. It is in every sense a "Where to get it—How to use it" book.

Supplementing the alphabetical listing of products are several others. One is an alphabetical listing of brand names identified with the producers who use those names. Second, is an alphabetical list of producers. Finally, there is a list of trade associations, also arranged alphabetically. Thus, a reader interested in a given product, can turn to the products list, and find the names of the manufacturers who produce the product. If the reader knows only a brand name he can turn to the brand name listing, and immediately determine the name of the manuacturer of products under that brand name. The listing of manufacturers permits the reader to instantly find an address. Finally, the association listing is included to enable the reader to get information of a general nature on any given class of products. Manufacturers whose products are advertised in American Builder appear in bold type. The purpose of this emphasis is to enable the reader to comb through his library of American Builder issues for the specific information contained in the advertising of a given manufacturer or group of manufacturers.

The main editorial section of the book is the reference data section. This is divided into chapters with the contents of each clearly noted. Advertising, with the exception of a few pages that were not classified is included in the chapter which treats the product or products advertised.

This association of advertising with the reference data saves time for the reader and directs him quickly to an invaluable source of useful editorial and advertising information on any given product. To accomplish this type of make-up it was necessary to solve many unprecedented production and printing problems. It was possible only through excellent cooperation on the part of advertisers and advertising agencies, and perfect liaison between our business and editorial staffs.

The magnitude of the job that faced the publishers probably can be appreciated when it is known that approximately 5,775,000 separate impressions in the printing shop were necessary to produce the issue. The publishers are proud of this latest first in a long line of American Builder firsts, and in commending our own editorial and business personnel together with advertisers and advertising agencies, view this trail-blazing issue as another indication of American Builder's continuing leadership in the light construction industry.

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### **AB** Washington News Letter

#### For the Light Construction Industry

A special service for American Builder readers. The latest Washington developments affecting the light construction industry assembled by special Washington correspondent and sent by wire to be printed and bound in your American Builder at the last minute before it is mailed. A regular monthly feature.

Washington, March 24, 1952.

- ▶ THOSE NEW CONSTRUCTION REGULATIONS, pending since the first of the year, have been issued by NPA. Order M-100 applies to that "separate breed" the home builders. Another regulation, Revised CMP Reg. 6, covers other construction. Both orders became effective March 6.
- ▶ ORDER M-100, the housing regulation, covers construction or alteration of housing up to four-unit size, except Wherry-Act housing. Larger multi-unit structures are under CMP Reg. 6.
- THE NEW ORDERS ARE MILDER than old regulations. There are substantial relaxations on the use of steel. The only curtailment of importance is a reduction (by 25 pounds) in the amount of copper permitted for houses with copper water distribution systems. Mixed water service systems are permitted, as noted below.
- > SELF-AUTHORIZATION REMAINS in effect. Home builders can self-certify orders for CMP materials, the same as under former regulations. NPA dropped plans for imposing new limitations on housing, like square-footage or a bath-and-a-half per unit.
- M-100 SETS UP THE FOLLOWING self-certification allowances per unit on housing started after March 6:

Structures using copper water distribution systems: 1,850 pounds of steel, 35 pounds of copper.

Structures using copper water distribution systems: 1,950 pounds of steel, 135 pounds of copper.

Where a local building code requires type B or K copper tubing for underground water service connections, but steel pipe is used inside: 2,135 pounds of steel, 80 pounds of copper. If copper pipe is used inside: 1,950 pounds of steel, 145 pounds of copper.

- ANOTHER PROVISION of M-100 permits self-certification of up to 50 per cent of the above amounts for alterations. But a home must be at least a year old before this can be done.
- > IF ALTERATION of an existing structure includes initial electrical wiring, an added 17.5 pounds of copper per unit can be self-certified. Similarly, additional materials can be self-authorized to cover initial plumbing installation. New units using electrical energy heating systems get a bonus of 15 extra pounds of copper.
- ONE BIG CHANGE from previous regulations: Builders may substitute aluminum for copper in electrical wiring systems. One pound of aluminum for two pounds of copper. If aluminum wiring is used, the copper allotment per unit must be reduced accordingly.
- NO ALUMINUM can be self-certified, except for wiring. Likewise, no structural or stainless steel is permitted in new home construction. There are several specific prohibitions, also, on the use of copper fabricated on the job site. Examples: Downspouts, gutters and accessories; linoleum stripping, roofing, and in cement or composition flooring.
- ▶ A VIRTUAL BAN ON SEASONAL HOUSING is contained in M-100. This ban hits both new construction and alterations. After March 6 a builder can't self-certify for this type construction unless he first obtains an "exception" to the order and NPA says it won't grant many. Only in cases of "undue hardship." But if construction or alteration of a "seasonal" house was already under way on March 6, a builder can use regular self-certification to go ahead and complete the job.
- FOR TEMPORARY HOUSING, self-certification is out. A CMP-4C application must be filed and approved (by HHFA) on all such housing. Again, the rule does not apply if construction or alteration was already under way before March 6.

- ▶ USE OF FOREIGN OR USED STEEL, including structural, is permitted under both M-100 and CMP reg. 6. It won't be charged against the self-certification quota in any case. Members of the construction industry advisory committee held out for this and won. But NPA warns that it won't match this "free" steel with added amounts of copper or aluminum.
- ▶ BUILDERS CAN USE a \*DO\* rating to obtain materials and equipment other than basic controlled metals of steel, copper and aluminum. The allotment symbol for housing is \*U-7.\*
- CONSTRUCTION UNDER WAY when M-100 was issued will continue to be governed by regulations previously in effect. In some cases, this will mean a more liberal copper allotment. If a builder finds material benefits in the new order, NPA says he can switch over and use it. He can also use the new aluminum-wiring provision. But all housing started after March 6 has no choice. It is regulated entirely by the new rules.
- ▶ ONE AIM OF M-100, according to NPA, is to bring materials out of inventory and get them charged against CMP. Under former regulations a builder could supplement his self-certifying quota by using from his own inventory. This is no longer permitted. Under the new rules, anything used from inventory must be considered a part of the per-unit quota, the same as though it were acquired from an outside source by self-certification.
- REVISED CMP REG. 6 follows the new housing order in easing up on steel. A principal change from former regulations is the increase, from two to five tons, in the amount of carbon steel that can be self-authorized each quarter for a commercial, non-industrial project. But only two of the five tons can be structural. And no wide-flange beams at all.
- LIBERAL RELAXATION for new commercial and industrial construction is indicated for last two quarters of '52. DPA is encouraging filing of all applications for processing now so work can start promptly. Any prolonged strike in the steel industry could reverse this outlook.
- MORE PRE-COMMITMENT AUTHORITY for FNMA may be forthcoming to help builders meet defense housing needs. Industry spokesmen are pounding away on the theme that such authority is needed to help break the present mortgage bottleneck.
- ▶ RESOLUTIONS were introduced in Congress March 13 to add \$52,000,000 to FNMA'S pre-commitment authority. This addition would cover more than 5,600 units in 37 specific critical areas. Applications for pre-commitment on this housing were made before FNMA'S authority expired last December 31; but the agency had used up all its \$200,000,000 authorization before it got around to them.
- ▶ DIRECT-LOANS-TO-VETERANS BILL passed the House, 341 to 0. It's now pending before a Senate committee. The bill would guarantee VA at least \$25,000,000 a quarter for making direct home and farmhouse loans to veterans. It would add a total of \$125,000,000 to the agency's "revolving fund."
- ▶ HOUSE APPROPRIATIONS COMMITTEE, at work on the big 1953 budget, has recommended that Congress authorize construction of only 25,000 public housing units during the next fiscal year. The budget request was for 75,000.
- THE HOUSE HAS WHITTLED large chunks off President Truman's recent request for more funds for defense housing activities of HHFA and FSA. Provision of community facilities and services is a joint HHFA-FSA responsibility under the Defense Housing Act, and \$44,500,000 was requested for this work. The House, in passing the bill, approved only \$13,375,000. In addition, President Truman asked \$25,000,000 for public housing under HHFA. This was cut to \$12,500,000.
- ▶ FEBRUARY HOUSING STARTS were estimated at 77,000 by the Bureau of Labor Statistics. This compares with a January total of 68,000, and with 80,600 starts in February 1951. Private building alone accounted for approximately 74,500 of the starts in February 1952.
- ▶ WAGE BOOSTS for construction workers may result from new policy just announced by the Wage Stabilization Board. The board said it would approve pay increases of up to 15 cents an hour in 1952. Nor will it oppose establishment of health and welfare plans for construction workers, provided employer contributions to such plans do not exceed 7 1/2 cents an hour.

APRIL 1952

# Here's the Home Building Picture Across the Nation

A MERICAN BUILDER again presents its exclusive. nation-wide quarterly survey of current industry opinion on the most pertinent problems of the day and the outlook for the immediate future.

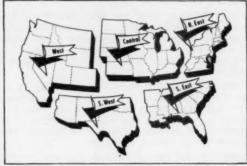
Last-minute telegraphic reports from leading active builders, reproduced here in capsule form, provide the most authentic and up-to-date information available. The adjoining map indicates the states represented in the regional summaries.

#### Consensus:

Out of the haze of varied opinions, there appears to be a definite feeling of quiet optimism, which was lacking in the anuary report. The newly enacted NPA M-100 regulation discussed in detail in the American Builder Washington News Letter on pages 14 and 15) is expected to accelerate this favorable trend.

During the next six months, home starts may decline dightly—possibly 10 per cent—and building costs are not expected to change. Three months ago, estimates forecast an average drop of 20 per cent in starts and rise of 5 to 10 per cent in costs.

Sales resistance is increasingly apparent in moderate and



high-cost homes, while the mortgage situation remains much the same as in January, with conventional loans readily available, FHA in fair supply and VA very tight.

Few difficulties are reported due to NPA poundage limitations; materials supply lines are improving and talk of labor shortage has all but vanished.

#### Home Starts in Next Six Months —

#### Northeast

increase or Decrease?

Reports generally cancel each other out, indicate little over-all change in tempo, but represent improvement over orecast of last January, Central New York looks for an increase of 50 per cent, while New England centers expect eneral improvement, as much as 15 per cent in Boston and Hartford, Conn. Long Island expects to hold even while New Jersey centers vary from no change to a drop of 20 per cent. Philadelphia and Washington anticipate moderate decline.

#### Southeast

General decline forecast, excepting South Florida and Montgomery, Ala, Falling off of 40 per cent expected at Memphis and New Orleans.

#### Central

Iowa cities see 5 to 10 per cent more activity, except Davenport, which fears a 40 per cent drop. South Bend. Ind., expects a 15 per cent boost, while the St. Louis situation will probably remain static. Other areas forecast a slight cut, averaging 10 to 15 per cent or about the same as predicted in January.

#### Southwest

Area-wide decline of 25 per cent freely predicted, but San Antonio, Texas, believes the drop will be limited to 10 per cent.

#### West

Denver anticipates activity will be equalled or slightly surpassed. Spokane, Wash., anticipates no change. Other cities list decreases, from 10 per cent in Los Angeles to 30 per cent in Tacoma, Wash.

## Is Sales Resistance Increasing? In What Price Brackets?

#### Northeast

Ready sales are the rule in lower-price ranges, with definite resistance beginning at \$12,000 in Philadelphia; at \$15,000 in Hartford, Conn., central New York and northern New Jersey; at \$20,000 in Boston and at \$35,000 in Essex and Morris Counties, N. J. Washington finds it hard to move homes requiring more than \$5,000 cash.

#### Southeast

Jackson, Miss., alone reports no particular resistance. Other centers note fair to strong resistance in all ranges except South Florida, where the sales slowdown begins at \$15,000 and Memphis, troubled mainly in the \$17,000 to \$20,000 bracket.

#### Central

Buyers becoming increasingly reticent in most areas, but Cincinnati and St. Paul. Minn.. anticipate upward swing with arrival of spring. South Bend. Ind., experiencing difficulty in low-cost brackets, while Wisconsin, Illinois and Dayton, Ohio, note definite lack of sales over \$15,000. Regulation X down payment requirements generally held responsible for slowdown.

#### Southwest

Increasing resistance evident throughout territory, with only San Antonio, Texas, considering situation as "not serious yet." Market seen sluggish for homes priced at \$15,000 and up.

#### West

Fair resistance laid to financing difficulties. Sales still brisk in \$8,000 to \$10,000 bracket at Denver, with slower market, but "no distress housing deals at present" above that range.

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#### Building Costs — What Changes May Come in the Next Six Months?

#### Northeast

Consensus indicates little or no change. Philadelphia, central New York and Delaware see a 5 per cent increase.

#### Southeast

Costs appear stabilized, with only Jacksonville, Fla., expecting an increase, 5 per cent. Slight decreases are predicted for South Florida and Birmingham, Ala.

#### Central

Slight rise in costs foreseen, with Sioux City, Iowa, topping the list at 5 to 10 per cent and Des Momes, Iowa, placing the figures at 5 to 8 per cent. Stable conditions are reported at Milwaukee. St. Louis, South Bend, Ind., and Davenport, Iowa, the latter explaining that lower cost of materials will offset the rising labor bill. If sales fall off, Cincinnati predicts a reduction in home prices as great as 10 per cent, with builders and suppliers cutting margins.

#### Southwest

Present levels likely to continue.

#### West

Opinion divided as to costs remaining the same or increasing. Rise of 10 per cent expected in Tacoma, Wash., while Denver rates it at 5 per cent. Los Angeles attributes an undetermined increase to labor conditions.

#### What's the Mortgage Money Situation?

#### Northeast

Availability of money for conventional, FHA and VA mortgages ranges from "good" in Boston to "very limited" in Washington, D. C. Philadelphia and Delaware have no VA money at all and in northern New Jersey only a small amount can be had upon payment of a premium. Conventional and FHA funds generally are in good supply, except for Philadelphia, where the FHA supply is tight.

#### Southeast

VA practically nil, although Birmingham, Ala., lists some loans available for houses priced above \$10,000. FHA and conventional loans reported available, but not plentiful, in Jacksonville, Fla. FHA situation is critical in New Orleans and all type of mortgages are very short in South Florida. In most cases, conventionals present no major problem.

#### Central

Scarcity of VA loans acute in all reporting centers, but recent improvement is noted in Davenport, Iowa, and Dayton, Ohio. Davenport reports FHA backing "reluctantly available," which seems to apply to South Bend, Ind., and Sioux City, Iowa. Conventional mortgages are in fair supply at 5 per cent interest, with top valuation about 60 per cent.

#### Southwest

No VA money available "at reasonable rate." San Antonio, Texas, reveals a 3 to 4 per cent premium is required, while Houston points out some loans can be had at 1½ to 5 per cent brokerage. FHA and conventional mortgages range from available to plentiful, except for the Texas Panhandle where "higher yields" are necessary.

#### West

Conventionals "available at a price" in Los Angeles; adequate elsewhere. FHA supply tight to fair in Spokane and Tacoma, Wash., otherwise satisfactory. VA situation universally bad—Denver has limited loans at "substantial discount."

## Are NPA Poundage Limitations On Metals Hindering Completions?

#### Northeas

No problems on completions, as yet. Essex and Morris County, N. J., builders of large homes find it impossible to build units with more than two baths.

#### Southeast

Memphis reports regulations limit home size to about 1,400 sq. ft. of floor area. No difficulties revealed.

#### Centro

St. Paul, Minn., which encountered difficulty with copper allocation for water supply lines, finds new M-100 order solves its problem. St. Louis has no problem now but fears latest regulation may cause trouble. Des Moines, Iowa. reports serious restriction of the market for larger custombuilt houses.

#### Southwest

No difficulties,

#### West

No problems, other than elimination of the luxury home.

## Is Labor Supply Adequate In All Trades?

#### Northeast

Manpower situation reported plentiful everywhere, although Hartford, Conn., warns it is becoming increasingly hard to find competent help.

#### Southeast

Supply ranges from adequate to abundant in all reporting centers.

#### Central

No shortage listed anywhere but in western Illinois, which finds the carpenter situation tightening. A minor degree of unemployment is cropping up in St. Paul, Minn.

#### Southwest

Adequate supply everywhere.

#### West

Only Denver reports a problem—scarcity of bricklayers, lathers and plasterers.

#### Are Materials in Adequate Supply?

#### Northeast

Sufficient quantities of all materials generally noted, the only exceptions being a growing copper scarcity in New York's Chemung Valley area and a tight supply of galvanized sheets in Essex County, N. J.

#### Southeast

Copper, aluminum and steel all on the critical list at New Orleans. Birmingham, Ala., lacks copper. No other shortages reported.

#### Central

Sole shortage acknowledged at the moment is large-sized copper wire at Dayton. Ohio. Cincinnati anticipates a cement crisis in late summer.

#### Southwest

Copper is off approximately 15 per cent in northern Texas. All supplies adequate at other reporting centers.

#### West

No signs of shortage in evidence, excepting Denver which foresees a future tightening of copper.

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## **ASSOCIATIONS**

Their Plans and Activities

#### Dealer Meetings Draw Record Crowds As Industry Eyes Effects of Curbs

Keen interest in the status of the industry under current and potential government controls is pushing attendance to record levels at state and regional lumber dealer association conventions. Registration has hit the 4,000 mark at several meetings. Highest reported so far is the new Northeastern record of 4.748.

The traditional annual "get-togethers" of around 30 of the allied groups began in January and will continue through April. Becoming increasingly popular, the conventions are also long on history—it was the 71st annual meeting for the Ohio association and many are in their 50's and 60's.

Here are some convention highlights:

#### NORTHEASTERN

The Defense Production Authority's announcement that critical materials would be 40 per cent less available for home construction in 1952 than in 1951 has been labeled as "utterly unrealistic" by the Northeastern Retail Lumbermen's Association.

In a strongly worded resolution adopted at its recent record-breaking 58th annual convention in New York, the association charged that such a cut-back would not create savings vitally affecting defense production, although it would probably provoke serious unemployment in the industry.

Held in the Hotel Statler, the sessions drew an all-time high registration of 4,748 persons, while 122 exhibitors occupied 163 booth spaces.

Frank H. Morin of Fulton, N. Y., was elected president to succeed Russell L. Fish of Scituate, Mass. Other new officers named were J. Harold Stacey, Windsor, Vt., first vice president; Deyo W. Johnson, Ellenville, N. Y., second vice president; Arthur Clifford, Bridgeport, Conn., third vice president; Jay LeFevre, New Paltz, N. Y., fourth vice president, and Oliver J. Veling, Buffalo, treasurer.

Other resolutions adopted urged the government to stop yielding to demands by specially favored pressure groups for wage increases; asked Congressmen to scrutinize carefully all requests for appropriations and eliminate all non-essential expenditures from the national budget; called for cutbacks in public housing starts comparable to those set for private enterprise; recommended that all proposed public projects be submitted to local referendum and demanded legislation requiring that all coperatives "bear their fair share of the

tax burden

Roy Wenzlick, St. Louis real estate and construction analyst, provoked considerable interest among the dealers with the statement that, generally, it is now



Frank H. Morin, Northeastern President

inadvisable to build new homes in the over-\$15,000 class unless the sales order is in hand.

Senator Harry F. Byrd of Virginia closed the four-day session with a luncheon address, in which he charged that "fiscal irresponsibility" of the Truman administration had placed the nation on a path to insolvency and socialism.

(Continued on next page)

#### Steel Cabinet Producers Form Trade Association

Final organizational plans were completed recently by the Steel Kitchen Cabinet Mamufacturers Association, Nineteen companies made up the original membership of the new group, with others considering affiliation.

Member companies at time of organization were:

Acme Metal Products Corp., American Central Division of Aveo Manufacturing Corp., Berger Manufacturing Division of Republic Steel Corp., Crosley Division of Aveo Manufacturing Corp., Elgin Steel Kitchens, Geneva Modern Kitchens, Inc., Harrison Steel Cabinet Co., Hubeny Brothers, Inc., Ing Rich Metal Products Co.

Lyon Metal Products Co., Marvel Metal Products Co., Miller Metal Products Co., Morton Manufacturing Co., Mullins Manufacturing Co., Mullins Manufacturing Co., Murray Corporation of America, Palley Manufacturing Co., Shirley Corp., and Tracy Manufacturing Co., division of Edgewater Steel Co.

Named president of the new association was M. M. Miller, president of Miller Metal Products Co. F. F. Duggan general sales manager of American Central Division, Avco Manufacturing Co., is vice president, and Arthur J. Tuscany, trade association management firm head, is executive secretary and treasurer.

#### Air Mortgage Problems at Senate Hearing



LAWMAKERS AND HOME BUILDERS meet at recent seminar called by Senate banking and currency committee to discuss mortgage finance problems in connection with stimulation of defense and military construction. From left: John M. Dickerman, National Association of Home Builders legislative counsel; Senator Burnet M. Maybank of South Carolina, committee chairman; Emanuel M. Spiegel, New Brunswick, N. J., NAHB first vice president; Alan E. Brockbank, Salt Lake City, NAHB president; and Senator John M. Sparkman of Alabama.

#### Dealer Meetings Draw Record Attendance

(Continued from preceding page)

#### OHIO

A near-record attendance was reported at the 71st annual convention and materials exposition of the Ohio Association of Retail Lumber Dealers, Nearly 4,000 dealers, manufacturers and their guests were on hand for the recent meeting in the Cleveland public auditorium,

Product exhibits were more comprehensive this year, emphasizing growing competition, according to Findley M. Torrence, association secretary. Exhibits numbered 161.

More than 12 hours of panel discussions were conducted at top-management clinics during the three days of the convention. Topics included: more effective selling, better retailer-consumer relations, employee education, and improved merchandising policies.

An impressive display illustrating millwork design and shop management was staged by the Cleveland Lumber Trade School, Suggested by the Cleveland Lumber Institute, the school exhibit was

a new convention feature.

James Clemens of the Scheetz Lumber Co., Youngstown, was elected president of the group for 1952, succeeding William Stine of Bryan. Also named to new offices were Homer Prakel, Versailles, first vice president; and Ralph Lutz, Lexington, second vice president. Reelected were Allen Brain, treasurer; secretary Torrence; and Charles E. Benson, assistant secretary.

#### SOUTHWESTERN

\ total registration of 4,250 at this year's convention broke all previous records for the Southwestern Lumbermen's Association. This was the 64th annual meeting of the group, made up of dealers from Missouri, Kansas, Arkansas and Oklahoma.

Business sessions were held at the Kansas City, Mo., municipal auditorium, where 177 exhibitors used 227 product

display spaces,

The program reportedly met with greater enthusiasm than on any other recent occasion. The list of guest speakers included U. S. representative O. K. Armstrong of Springfield, Mo.; Garner M. Lester, president, National Tax Equality Association, Jackson, Miss.; Don A. Campbell, Lebanon, Ky., NRLDA past president; and Dr. Allen A. Stockdale, National Association of Manufacturers.

Association officers elected to serve in 1952 are: Henry H. Jones, Little Rock, Ark., president; Fred S. Stephenson, Chickasha, Okla., first vice president; Sam M. Arnold, Kirksville, Mo., second vice president; C. M. McAllister, Garden City, Kans., third vice president; C. Wilbur Baker, Kansas City, Mo., treasurer; Frank F. Tyler, Kansas City, Mo., counsel; and Allan T. Flint, Kansas City, Mo., secretary-manager,



BOARD OF TRUSTEES of Ohio Association of Retail Lumber Dealers, including new and retiring chairmen of group's 26 districts, and association officers. Officers are (from left, (ront row) fifth person, William H. Stine, retiring president; seventh, Allen Brain, treasurer; second row, fifth, James H. Clemens, new president; seventh, Findiey M. Torrence, secretary; third row, sixth. Homer Prakel, first vice president; fourth row, righth, Ralph C. Lutz, second vice president,



1952 OFFICERS Of Southwestern Lumbermen's Association: (from left) C. M. McAllister, third vice president; Fred S. Stephenson, first vice president; Henry II. Jones, president; Sam M. Arnold, second vice president; and Allan T. Flint, secretarymanager

#### NORTHWESTERN

"We've had a lot of 'specialty' people enter the building field in the past few years and one of the reasons for this is that the retail dealer has been too busy to realize his obligation to the customer. R. Clem Knecht, president of the Northwestern Lumbermens Association, told members of the group at its recent 62nd annual convention in Minneapolis.

Knecht, who was reelected to a second term as association head, opened the meeting with a talk on "Dealers' Obligations," Speaking of giving a complete and conscientious service to the customer, he declared: "If the dealer does not apply himself and do these things for the customer, someone else willand the dealer will not only lose that business, but some more with it."

The lumber dealer, Knecht said, has

an obligation not only to contribute financially to local agencies but to take an active part in community affairs by making it his business to see that the people who are running the various organizations are capable of doing so. He also urged greater interest and participation in government at the state and national levels.

Other convention speakers included Joseph T. King, association Washington counsel; Joseph L. Wood, assistant treasurer, Johns-Manville Corp.; Ralph W. Carney, vice president of the Coleman Co.; and James Q. du Pont, extension division, the du Pont Co.

The four state vice presidents of the association are Neill D. Woodworth. Little Falls, Minn.; Dean Piper, Minot, N.D.; George Westover, Pierre, S.D.; and Harold Weitz, Des Moines, Iowa.

#### WISCONSIN

More than 3,500 persons, the largest crowd in the group's convention history, were on hand for the 62nd annual meeting of the Wisconsin Retail Lumbermens Association in the Milwaukee auditorium. Exhibit space was filled to capacity by 190 booths.

Talks by several nationally-recognized business experts featured the general sessions. These included "Taxes," by Joseph F. Leopold, industrial relations contends, Dallas, Texas; "Credits and Collections," Harry L. Judd, U. S. Gypsum Co.; "Salesmanship," Tom Colins, publicity director, City National Bank and Trust Co., Kansas City, Mo.;



HEADING WISCONSIN LUMBERMEN in 1952 are (from left) W. E. Wolfe, treasurer: H. P. McDermott, secretary: and J. N. Hamar, president

and "Psychology in Business," Dr. George W. Crane, Northwestern University psychologist and author, Chicago.

Another highlight of the business program was a panel discussion on "Friendly Relationship between Manuiacturer, Wholesaler and Retailer," moderated by Edward G. Gavin, Ameriran Builder editor.

J. N. Hamar of Houghton, Mich., was reclected president of the association, and W. E. Wolfe, Waukesha, Wis., was elected treasurer, succeeding J. E. Richardson, Sheboygan Falls, Wis. Newlyelected directors are John Winquist, Crystal Falls, Mich., and W. L. Roettiger, Fountain City, Wis.

#### KENTUCKY

Elbert Myers of the Old Planing Mill, Glasgow, was elected president of the



Elbert Myers

Kentucky Retail Lumber Dealers Association at the group's recent annual meeting in the Brown Hotel, Louisville. He succeeds Sam Levy of Louisville. R. E. McConnell, Paris, was named vice president.

Directors named for two year terms, in addition to McConnell and Levy, are W. W. Henderson, Hopkinsville; Graham McCormick, Lexington; Claude Berry, Eminence; W. C. Hale, Hickman; Kenneth Lawson, Baxter; D. M. Daugherty, Falmouth; and Graham Montley, Bowling Green.

#### Launch One-Year Course At College Level for Lumber Yard Careerists

Opening of a trade school for retail lumber yard and counter personnel, to be operated in cooperation with Oklahoma A & M Tech School at Okuulgee, has been aunounced by the Oklahoma Lumjermen's Association.

Plans reported by R. A. "Bob" Parker, president of OLA, and L. K. Covelle, A & M Tech director, call for two divisions of the school—a one-year course under the trade preparatory division for students with no experience in the retail lumber business; and, for those with experience, an eight-week program in the trade extension division, covering subjects the student needs most.

The one-year course requires 12 full months and covers the following curriculum:

Commercial—Business English, business letter writing, penmanship, typing, business machines, business law, insur-



INSPECTING FACILITIES of Okiahoma
A. & M Tech School are (from left) Dale
Carter. Tulsa. vice president of Okiahoma Lumbermen's Association; L. K.
Covelle. school president: and R. A.
Parker. Ponca City. Okia. president

ance, lien laws, real estate, finance, collections, labor laws, merchandising, economics, business arithmetic, accounting, and stock control.

Light Construction—Cost estimating, carpentry, cabinet making, draftsman-ship, free hand drawing, blueprint reading, building materials, wood, metal, glass, wallboard, millwork, paint, concrete, and interior decorating.

Human Relations—Personnel, customer courtesies, salesmanship, business ethics, and public speaking.

For the eight-week extension division course, the student may select any of the above courses. Eurollment starts each eight weeks during the year. The first period started March 3. Courses were adapted by the association's educational committee. Teachers for the academic courses will be supplied by the school, with OLA supplementing the instruction with lectures by men in the industry.

School director Covelle said it was the sponsors' feeling that the program can render a worthwhile service to young men and women who want to enter the retail lumber industry and can afford only one year of college. In addition, it offers a refresher course to those already in the field.

The school is open to anyone with the ability to learn and desire to work, Corvelle said. High school graduation is not a pre-requisite.

#### Donald DeWitt New Head of Maple Flooring Group

Donald S. DeWitt, president of the Holt Hardwood Co., Oconto, Wis., was elected president of the Maple Flooring Manufacturers Association at the group's 55th annual meeting, held February 1 in Chicago, DeWitt who was



Donald DeWitt

vice president, succeeds W. C. Abendroth, who served during the past five years.

Also elected at the meeting were W. W. Gamble, White Lakes, Wis., vice president; S. A. Wells, Menominee, Mich., treasurer; and L. M. Clady, Chicago, secretary-manager.

DeWitt has been active in trade association and Northern hardwood industry affairs for more than 25 years. During World War II he served on national industry advisory committees and is active on similar committees during the present emergency.

#### 140 More Dealers Get "Minute Men" Buttons

"Minute Man" lapel buttons in recognition of active participation in its new public relations campaign have been sent by the National Retail Lumber Dealers Association to 140 more dealers throughout the country.

In distributing the buttons, C. B. Sweet, chairman of the group's public affairs committee, reported that more than 2,800 newspaper clippings were on file in the national's public relations department.



#### **Dealer's Viewpoint**

H. R. NORTHUP. Executive Vice President, National Retail Lumber Dealers Association

#### Political Struggle for Critical Materials Takes Clearer Shape

The extent to which politics influences the course of the defense controls program insofar as construction is concerned has become increasingly evident in recent weeks.

It was generally assumed that political considerations would be given more and more weight with the approach of election day, but the pattern has developed even more clearly than had been anticipated.

If that pattern continues to develop—and there is no reason to think it won't—the housing and light construction industry will have to remain continually alert to see that its interests are not overshadowed in the political stringgle for critical materials in the months ahead.

The first indications that DPA and NPA were vulnerable to political pressures appeared after a large group of mayors and municipal school officials complained to Construction was receiving too little steel and copper. Shortly afterwards their allocations were increased.

Then the highway builders and users supported by State governors, complained that the highways needed and deserved more steel. They got it.

Small business groups went to Congress and complained that allotments had been reduced to the point where many little manufacturers would be forced out of business. Larger allotments were promised.

Employment in the building trades began to fall off sharply in

New York City, Both New York senators intervened with the defense agencies. Senators from other States followed suit. NPA promptly readied a plan for allocating more critical materials for construction purposes in "distressed areas."

After taking steps to please those groups, some of whom unquestionably deserved help, our defense officials decided it was time to make a smart political play in the opposite direction. Since so-called "luxury housing" always is a good political target, they conceived the idea of limiting all new homes to one and a half bathrooms—a move calculated to please many more voters than it would offend.

That proposal fell of its own weight in view of the fact that copper was the only critical material involved and the amount of copper per home was restricted anyhow. But the political purpose probably was served

The point is that no administrator in Washington can divorce himself from politics even in time of national emergency. If he isn't "reasonable," he doesn't stay very long in his job. Just as politics has played a leading part in bringing about adjistments in allotments of critical materials, so will the same force play an equally preminent part in determining how fast decontrol will come and who will get the breaks when that process starts.

Those who sit back and wait for justice to take its course are likely to be disappointed.

#### Detroit Builder Edward Rose Gets City-Wide Tribute

One of the highest tributes ever paid a Detroit builder was received by Edward Rose when he celebrated his 30th anniversary in the business recently.

Rose, who has creeted 8,000 homes during his career, was honored at a party given by his four sons, now learning the building business. Awards were presented by the National Association of Metropolitan Detroit, Michigan Corporation and Securities Commission, and Detroit Common Council.

On hand for the event were officials of the city, the Veterans Administration, Federal Housing Administration, building material firms and other allied industries. Page advertisements in Rose's honor, paid for by suppliers, appeared in the three metropolitan newspaners.

He has been very active in the Detroit association, serving as first vice president in 1950.

#### Head Plywood Institute

Recently elected president of the Hardwood Plywood Institute was M. C. McIver, president of the Penokee Veneer Co. and board chairman of the Splicedwood Corp., Mellen, Wis. F. S. Kuhn of the Southern Laminating Co., Memphis, was named vice president. Charles E. Close of Chicago was reelected secretary-treasurer.

#### Home Builders League Salutes New Industry Locating in S. Jersey

Industrial expansion taking shape in the Camden-South Jersey area, which is expected to reach \$2 billion when completed, was recently hailed by the Home Builders League of South Jersey with a "testimonial salute" to the new industries.

Included in the huge blueprint for expansion are many new industrial plants, equipment, new housing for new employees, a network of highways, bridges and other transportation facilities.

The formal salute was a Leaguesponsored dinner at the Hotel Walt Whitman, Camden, attended by more than 450 representatives of industry. Principal speaker was Thomas E. Millsop, executive vice president of the National Steel Corp., which plans to build a \$200 million plant in the area.

An additional "welcome" was given in a special Home Builders League section of the Camden Courier-Post, which the League and other local firms supported with advertising. The section covered details of the expansion program, plans announced by the home builders to provide housing when it is needed, and other home building news.

#### Heads NAHB Executives



NEW LEADER of the Executive Officers' Council: James W. Pearson, executive director of the Home Builders Association of Metropolitan Washington. He was elected president of the NAHB division at its annual meeting held during the convention last January.

#### N. Y. Employer Officers

Fred J. Driscoll was reelected president of the Building Trade Employers' Association of New York City for a second term. Other officers named at the group's recent annual meeting were Harry J. Stellman, vice president, and William B. F. Drew, second vice president, both reelected; Joseph A. Courter, third vice president; and William Angus, treasurer. W. Arthur Riehl was reappointed secretary.

#### Des Moines Gets Top Home Week Awards

First prize awards in American Builder's 1951 National Home Week Contest were presented to the Home Builders Association of Des Moines at a recent dinner in the Jowa city.

Des Moines won in Group Îl—associations with from 150 to 250 members. The awards—hand-lettered scrolls—



WALTER GILBERT (right), 1951 president of the Home Builders Association of Des Moines, receives National Home Week award from Arthur V. Hansen, American Builder architectural editor

were presented by American Builder architectural editor Arthur V. Hausen to Walter Gilbert, president, and William C. Leachman, Home Week committee chairman, of the Des Moines group.

In other highlights of the dinner, the Des Moines Sunday Register received a certificate from the National Association of Home Builders for winning second prize in the contest for National Home Week sections; and the Des Moines Register and Tribune Co. was awarded a plaque by the Des Moines association for the newspapers' cooperation in promoting both National Home Week and the spring Better Homes Exposition, which drew a record 75,000 persons.

#### Robert Lyons New President Of Northern Hemlock Group

Robert W. Lyons of the Wm. Bonifas Lumber Co., Neenah, Wis., was elected president of the Northern Hemlock and Hardwood Manufacturers Association at the group's recent meeting in Land o' Lakes, Wis. Approximately 135 members and guests were on hand for the annual event.

Also named to office were C. D. Zagelmeier, Newberry, Mich., vice president, and W. W. Gamble Jr., White Lake, Wis., treasurer.

Speakers included A. E. Swanke, retiring president; Thomas Mason, National Production Authority; Richard G. Kimbell, National Lumber Manufacturers Association; and Frank Moore, purchasing agent, Chicago and North Western Railroad.

# PAR

#### Cortright's Column

FRANK W. CORTRIGHT, Executive Vice President, National Association of Home Builders of the United States

### More Metal for Automobiles — Why Not for Home Building?

Washington is more concerned these days with the subject "Guns vs. Butter" than with anything else, political matters excepted.

The subject isn't new. "Guns vs. Butter" was neatly packaged last year when the National Production Authority announced the Controlled Materials Plan, with resulting civilian sacrifices. Production of steel, copper and aluminum was estimated and allocations made as between civilian and military needs. But a new, major factor, recently introduced calculations of last year, and even early this year, appears to have been astonishingly inaccurate.

Result is daily announcements such as this morning's headline "Surplus Metal Going to Civilian Products." It seems that automobiles will be given additional steel, copper and aluminum in the second quarter. In the meantime, restrictive orders for housing continue to limit the quantities of these metals. It is particularly confusing when one considers how little metal a house requires as contrasted with automobiles and when one reads of the great housing shortages of defense workers and military personnel. Just why this Administration selects housing as the first industry in which drafted sacrifices must be made, for so-called patriotic reasons, is difficult to understand.

The supply of metal items isn't our only problem. At recent hearings before the Committee on Banking and Currency nearly thirty of the nation's outstanding experts in building and mortgage lending discussed at length a series of problems related to 1952 production of housing.

Some of the obstacles disclosed: inadequate interest rates in FHA and VA; inadequate supply of FNMA authorization; unsatisfactory FHA debentures; unrealistic acceptance by the FHA on the risks involved in defense housing; problems related to the Wherry bill housing for military personnel. These are real problems entirely unrelated to the allocation of copper, steel and aluminum.

copper, steel and aluminum.

Housing Administrator Foley gave a rather reassuring statement concerning probable volume of 1952 housing. He indicated that although a 40 per cent reduction in the critical materials made available to this industry should produce 800,000 new dwelling units, sufficient ingenuity on the part of the industry to substitute other materials might produce a housing volume in excess of 800,000 units. This is encouraging. Home builders historically have been able to find substitute materials of equal quality when necessary.

Then Mr. Martin, Chairman of the Board of Governors of the Federal Reserve System, made several equally interesting and important statements. He estimates that a net investment of new funds of about four and a quarter billion dollars will be necessary to support 800,000 starts. He states, "if . . . people continue to place savings with savings banks, insurance companies and savings and loan associations, these institutions, normally large purchasers of mortgages, will have we think, substantial funds to invest." Thus, the top authority in the banking field believes that new construction financing will be available. Better still, he agreed that a program of this size is not inflationary and "can be meshed into the present picture without seriously disrupting the economy."

Generally speaking, throughout the three-day round table discussion, bankers favored increased interest rates, and FHA debenture rates. Home builders, represented by NAHB president Brockbank, assumed no position on this highly controversial point but did maintain that financing was inadequate in many parts of the country and a particularly difficult problem in the more remote areas where the permanence of housing projects could properly be questioned. An optimistic observer of this conference could reach the conclusion that between the builders, lenders, government agencies and the Congress, satisfactory solutions to the financing problems will be reached.

However, this is of little value unless the "Guns vs. Butter" issue is settled within the mobilization agencies and the NPA allocates a sufficient quantity of basic metals for home building. The time has come for a careful re-check of the statistical phases of this important question. A clear-cut, definite policy should be set up which would be as equitable to the home buyer and the home building industry as allocations have been to the automobile industry and most other great industries throughout the country.

#### Seattle Master Builder Leaders



EXECUTIVE COUNCIL for 1952 of the Seattle Master Builders Association Seated are (from left) A. C. Goodwin, president; Dan M. Narodici, vice president; J. W. Morrison, secretary; and Albert LaPierre, treasurer, Standing are Trustees Ross P. Hebb, V. O. Stringfellow, Harold Larsen, Samuel Andersen, H. K. Schroeder and Kenneth Larsen. Not in picture are trustee F. R. McAbee and executive vice president V. H. Dent.

#### Story of Home Building Told in Grade School Instructional Unit

Students in the grade schools of the country now have a chance to learn about the housing industry through a program just launched by the educational committee of the National Association of Home Builders.

The program, according to Fritz Burns, committee chairman, is part of the association's long-range public relations campaign "to develop a better understanding of the social and economic significance of housing, and of the services performed by the home building industry." The course, for intermediate and upper grades, takes the form of an industry-sponsored educational "unit" in a recent issue of The Grade Teacher.

An accepted teaching aid, this publication is circulated to 360,000 public school teachers who are said to instruct more than 12,000,000 students. As the unit is designed for classroom use, reprints are available in quantity to teachers desiring to use it.

A feature of the unit is a play, to be performed by the students, depicting the search of a typical American family for a new home. It covers the reasons why the family wants a new home, introduces the present day home builder and tells how he works, and shows the newest features of modern houses.

Supplementing the information contained in the play are exercises and work projects to be carried out at home or in the classroom. They are correlated to subjects commonly taught, such as language arts, social studies, arts and crafts, maps and chart-making, science and arithmetic. Field trips to local housing projects, lumber or brick yards, or nearby plants of building material manufacturers are also suggested.

While the school program is largely self-operating, the educational committee is urging individual builders and local NAHB affiliates to cooperate with schools in their localities in order to obtain maximum utilization.

#### Texans Honor Fred Seale



JACK SEALE (right), Amarillo, Iexas, home builder, is presented a horonze plaque in memory of his father. Fred M. Seale, who died in November. Making the presentation is Troy Jones, post president of the Texas Panhandle Home Builders Association and Texas State Home Builders Association. The Seale Company, organized in 1940 by Fred Seale, has built around 1,500 homes in Amarillo, Jack Seale, now general manager, is the new president of the Texas Panhandle Association.

#### Perlite Institute Names Richard Davis Secretary

Richard L. Davis has taken the post of secretary-treasurer of the Perlite Institute, it has been announced by J. John Brouk, institute president and board chairman.

As secretary of the Industrial Mineral Wood Institute for the past 11 years, Davis was given credit for the establishment of the industry's product certification program and the introduction of a number of standards and specifications



Richard L. Davis

in the Bureau of Standards, American Society for Testing Materials, and the technical committee on heat insulations of the Federal Specifications Board.

From 1934 to 1941 Davis was with the management engineering firm of Stevenson, Jordan and Harrison, serving first as a statistician and subsequently in various executive and managerial canacities.

#### Material Handling Group Names 1952 Officers

1. West Shea of the Union Metal Manufacturing Co., Canton, Ohio, was elected president of the Material Handling Institute, Inc., at the group's recent annual meeting in New York.

The 78 member companies of the institute produce industrial trucks, hoists, conveyors, monorails, casters, batteries, steel strapping, and containers.

Named to the posts of first and second vice president respectively were John C. Mevius of American Engineering Co., Philadelphia, and H. M. Palmer, Lewis-Shepard Products, Inc., Watertown, Mass.

#### 47 Complete Dealer Course

Forty-seven students completed the recent 30-day course of the Indiana Lumber and Builders' Supply Association, held in cooperation with Purdue University. It was the eighth of the group's annual training programs for dealer employees.

The Association called the course the most successful it has sponsored so far.

Active in organizing the 1952 course were Harold V. Main, Indiana association education committee chairman; Merle M. McClure, coordinator of adult education for Purdue; and Robert L. Craft, association field representative.

## insulations for your every need



LAS ROLL BLANKETS-Aspholosi et paper an one side. Perforated paper on other tvallable in 15", 19" and 23" widths; thick,



PRESENCE AS EATT SEAMKETS—1.5" wide available in 24" and 48" lengths; 23" wide in 36" lengths. Same type of construction as roll blankets, Vepor burrier on one side. Thick, medium and "accomery" flicknesses.



FIREROLAS UTILITY BATTS-15" wide, 10%" long eneral use, packing into narrow spaces and triy shaped spaces. Available full thick only,



FIBERGLAS POURING WOOL—For pouring or hend packing in spaces between studs and joints. Packed in paper bags, 20 sq. ft, at 4" thickness per bag.



FIBERGLAS PERIMETER INSULATION-For stopping Present As Parimetries Institution—For reopping heart lesses through the concrete flour side of buseness-tess homes. Available in three types PF panels 12" x 48" x %" and AE (asphalt enclosed) panels 12" x 36" x 1", 114" and 2". Paper-fered 6-fb. density 24" x 60" x %", 1", 114" and 2".

build better houses.



FIBERGLAS INSULATION FOR CRAWL SPACES-For underside of floors built over unexcavated Available in a wide variety of types and sizes.



FIBERGLAS CAVITY WALL INSULATION—A pooring type product approved by Structural Clay Product Institute for masonry construction. Packed in 30-lb. bogs.

Are you acquainted with all these Fiberglas\* Building Insulations? If not, better get samples, prices and installation data—now! For every one of these products is tailor-made to do its job better than any other material. Every one helps you speed construction,

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#### LETTERS

#### Notes Concerning The Convention Daily

Sir: I wish to express my gratitude to the entire staff of the American Builder for the splendid cooperation they gave me and, particularly, for the splendid contribution made by your fine publication in giving us again the Convention Daily.

It has become a definite part of our annual convention. I know that hundreds of builders, dealers, and others look forward to having it each morning, and from the members I get reports that hundreds of copies were either sent or taken back home so those who did not attend would have an opportunity to realize what they missed.

I do not know of a better way to create interest in future conventions than through pictures and the printed word emanating each day from all our activities.

Paul S. Van Auken. NAHB Convention and Exposition Director

Sir: As usual, you fellows did an outstanding job for NAHB at the consention. Your part in our program certainly was appreciated. The Convention Daily. I can assure you, is a very important part of the success of this great meeting.

J. B. Haverstick. NAHB Convention Chairman

Sir: I certainly enjoyed reading your "Convention Daily" while attending the recent NAHB conference in Chicago. It was my intention to preserve each of these daily issues in my office files, but due to the press of other pending matters, I apparently misplaced them, I would certainly appreciate it if you would forward to me a copy of each "Convention Daily" issue.

Franklin L. Burns, President, D. C. Burns Realty & Trust Co.

Sir: May I again express my appreciation, and the appreciation of the delegates of this association, for the splendid convention coverage in your American Builder Convention Daily. This daily coverage is, without a doubt, one of the highlights of the affair, and is followed religiously by a great many of the delegates in attendance.

I took home approximately 250 copies of each issue which is being mailed to our builder-members so they may enjoy the magnitude of this national get-to-gether. Next year it is my intention to send out daily mailings to our members direct from Chicago.

Many thanks for the splendid coverage of our National Home Week promotion. It is going to give our 1952 promotion a terrific boost. Be assured we will make the best of the valuable publicity.

Lawrence W. Nelson, Executive Vice President, Minneapolis Home Builders Assn.

Sir: Could you favor us with 24 copies of each issue of the Convention Daily published by you Monday through Thursday at the 1952 NAHB Convention in Chicago? You're to be congratulated on your fine coverage of this convention.

There is no doubt in our minds but that your "Whose Is It?—Where Is It?" contest stimulated traffic to each and every booth at the show, Congratulations on this splendid promotion.

John M. Gaughan, Advertising Manager, Wadsworth Homes

#### Contest

Sir: It was indeed a pleasure to cooperate with you and the other members of the staff of the American Builder for the "Whose Is It!— Where Is It?" contest.

There seemed to be a tremendous amount of interest in the contest, because I recall many people coming by our booth to check our picture, which appeared in the first issue of the Convention Daily.

Certainly I think it is a very excellent undertaking for your publication, and one that created a great deal of interest among the exhibitors and those who attended the exhibit and convention. In the event you have this contest next year, we will be more than glad to cooperate in the event we exhibit our products at the NAHB show.

> John A. Reagan, Jr., Advertising Manager, Sonoco Products Company

#### **Express Our Appreciation**

Sir: I want to take this opportunity to express our appreciation for the American Builder award for our participation in National Home Week, From all appearances we will be in Class II next year, and I assure you we will expect to win this coveted award in '53. By appointing a chairman now, we expect to get off to a good start and wind up with a bang.

Ken Stowell, President

Wichita Assn, of Home Builders

#### Change Our Address Please

Sir: Attached is an address tab from one of my American Builder magazines. I wish that you would be sure and change the address on the rest of my issues because I do not want to miss a single issue, if possible.

As a rule when I see a new issue it's in the evening. It is very seldom that I get to tear the wrapper off because my wife usually has done it for me and is talking about the blueprint plan as soon as I get home.

We just built a new home for ourselves, The American Builder helped us considerably, as we gained many ideas from its pages and incorporated some of our own and got what we think is an ideal plan, at least for our purpose and liking.

From the operative builder's point of view, I like the Technical Guide and How-To-Do-It departments because we do a great deal of repair and remodeling work.

J. F. Morton, Omaha, Nebr.

#### Useful to Small Town Contractors

Sir: I recently renewed my subscription for a period of three years. You certainly turn out a fine magazine and one that is useful to a small town contractor like myself where it is hard to keep up with the latest trends in construction.

S. D. Crellin. General Contractor, Welwyn, Sask., Canada

#### **Thanks for Your Interest**

Sir: Instead of congratulating you for publishing my article (American Builder, Dec. 1951, Pg. 176) and telling you that the "Builder" will be a better magazine in the future because of it, I would like to thank you for interest in my contribution, and for the check which you sent.

Somewhere in your file you have another contribution of mine having to do with stairways, and the reclaiming of attic space in small houses. I sent these articles to you as "feelers" to see if you would publish them on merit.

I am an associate professor of Industrial Arts-Education here in the state university in Bowling Green, Ohio, and have held this position for slightly over 28 years. I have taught engineering drawing for over 15 years, and have set up courses in Architectural Engineering. My major interest is wood working and I have been teaching three courses on that subject, although I have also had a finger in machine shop, general metals, patternmaking, are welding, finishing, and related subjects.

E. C. Powell Bowling Green, Ohio

At the present time there is quite a backlog of "How-to-do-it" suggestions on hand. Your contribution having to do with stairways and reclaiming attic space in small houses is among them. We hope to use it in an early issue. We are always interested in how-to-do-it ideas that offer job shortcuts to our builder-readers.—The Editor.

#### **Thanks For Accepting**

Sir: Thank you very much for accepting two more of my "How-todo-it" suggestions and sending me a check in the amount of ten dollars.

You can rest assured that I shall endeavor to submit more and better ideas from time to time, for I know that these suggestions will be a great help to the readers of the American Builder magazine.

Thanking you again most sincerely, I remain,

> Herbert E. Fey, New Braunfels, Texas

#### Please Send

Sir: As a draftsman, I have read your magazine with a great deal of interest for several years. Even though it is my employer's copy and sometimes it takes several weeks to get passed down, it is still timely.

You have had two series of articles I would like to have: Engineered House Construction and Construction Lumber and Recommended Framing Practices. Will you advise me if I can still get reprints of these and if so how much will they cost?

D. Coliopy Trail, B.C. Canada

The two series of articles are being sent to you. We trust they will be of use to you in your further study of these subjects.— The Editor.

 Letters to the Editor should be sent to 79 W. Monroe St., Chicago 3, Ill. Your comments are invited.



# Put yourself in your prospects shoes...

As a shopper in your community, how do you go about finding all the products and services you need?

If you do what 9 out of 10 shoppers do—you probably go right to the 'yellow pages' of your local telephone directory.

That is a buying habit that has been going on for over 60 years. We know...because we've checked with folks in communities throughout the nation again and again.

That's why so many building contractors consider it smart advertising to have their name and sales message in the 'yellow pages'.

Check the headings in your local Classified ...make sure your name is under the products you sell and services you render.

AMERICA'S BUYING GUIDE FOR OVER 60 YEARS

FOR FURTHER INFORMATION,
CALL YOUR LOCAL TELEPHONE BUSINESS OFFICE



## **LOCAL TIE-INS FEATURING**

as advertised in

# House Beautiful

### Will add prestige to your promotion...VOLUME TO YOUR SALES

#### SEE FOR YOURSELF

You'll find plenty of pulling power added to your Spring promotional activities, if you build them around the forthcoming issue and the top-quality names on its advertising pages-names like the typical best-sellers whose pre-view trade messages appear below!

Additional high-style colors — Coral, Lilac and Cadet Blue are being featured in AMTLOS RUBBER FLOORS designed by famous decorators. Full color national advertising includes photos of rooms created by Elisabeth Drappe, William Pohlmann and others. See, also, sensational new Amtico Plastes Rubber Tooring — a value packed blend of rubber and plastic.

Beauty and protection are two outstanding qual-tites of CABOT'S CREOSOTE SHINGLE STAINS. Deep penetrating, these stains bring out the not-varil beauty of wood grain. Excellent range of colors, from clear brilliant hoes to weathering grays and browns, 60.90% accessed all great-gives (capboards, shingles and stding lessing pro-

Using increased space and color, this company's May ad in House Beautiful features the exclusive CASE ONE PIECE WATER CLOSE? and style minded "Windell" Lavatory. The One-Fiece is the first water close with integral low-level tonk, first with non-overflow. Fixtures available in white man and the color with integral low-level tonk, first with non-overflow. white and 26 colors.

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CONCOLEUM-NAIRN'S new "Fashion Floors" of Gold Seal Intaid Linoleum give you the apportunity to offer to your clients custom-designed floors for the cost of an ordinary linoleum pattern. Congoleum Noirn is pramoting this unique idea in a stunning full color page in six leading homemaking magazines.

AWNING WINDOWS - Illustrated catalog no. AWNING WINDOWS - Illustrated catalog to 89 gives sizes and types, hardware specifications and construction data on GATE CITY awning windows Prices, discounts, and complete archi-tectural file are available. Write to the Gate City Sash and Door Campany, Port Lauderdale, Florida

Helping dealers to sell more profitably has been KIRSCH policy for four decades. Certainly Kirsch has profited through this policy. So have dealers. Many times as much! On fabrics and worksoom services, as well as an the drapery hardware. It's no wonder that dealers have a firmly-roaded feeling for Kirsch.

Sanitary garbage storage - safeguards against breeding disease spreading insects - is one as Startity distance prending inserts is one of vantage beneding inserts is one of vantage BACE RECEVER. Housing with step operated is in buried in the ground conveniently near the kitchen door. Removable inner can simplifies removable by collector. Free folder by writing to the Majestic Co., Huntington, Indiana.

Build an OUTDOOR FIREPLACE — the subject of a profusely illustrated 52 page book containing complete details and plans of numerous fireplace designs, plus information on needed materials, designs, plus information on needed materials, construction helps, cooking tips and recipes. Title

is "How to Enjoy an Outdoor Cook-Nook". Price 25c. MAJESTIC CO., Huntington, Indiana.

. . . .

"National Water System Month – May 1952" is the theme of a MYERS WATER SYSTEM adver-tisement appearing in the May issue of House Beaufiful. A new promotion aid on water systems being affered Myers dealers is a plastic illumi-nated sign for indoor display purposes. For in-formation on sign and other aids, write: F. E. Myers and Bros. Co., Athland, Ohio.

The MOR-SUN PRESSED STEEL FURNACE (for The MOR-SUN PRESSED STEEL FURNACE (for gas and oil is unique in that it is Moss Precision Produced! Every part is die-pressed — assuring complete uniformity of component parts. But beauty on the autiside and rugged efficiency on the inside are not enough; the Mor-Sun gives even more — dependability — through use of quality control equipment. Mor-Sun finest, most beautiful furnace in the world.

The biggest and most aggressive advertising compaign in the history of OZITE is now in full swing. Qualities which only Ozite can claim are being stressed in ads and the story will be told over 115,000,000 times in 52.

PHILCO FREEZER — exclusive slaping front design puls 70% of storage at the Comfort Level — above the knees. Least bending — most toe and knee room. Striking "Key Largo" color styling — automatic interior light — counterbalanced hinges — famous Philips seeded power system. 1-25 and 81 cs. ft. size seeded power system. In 12.5 and 8.1 cu. ft. sizes.

The Savage line is more popular this year than ever before. Home owners are snopping up the nationally advertised 21-inch SAVAGE YARD CHIEF. Those with smaller lawns prefer the 18-inch power mower. The rotary sells fast where grass is corre. Cash in. Write for catalogue. .

SETFAST CANVAS PAINT is especially made to renew and beautify ald faded canvas awnings, deck thairs, author unbrellas, and similar absorbent convas articles. It revives colorless fibre, grass or sisal rugs. Setfast comes in a wide choice of colors and is easily applied. Sold in leading paint and hardware stores.

SUNBEAM HEDGE TRIMMER answers the trim ming needs of all shrubbery, hedges ornamental trees, etc. Powerful, high speed, lighter, easier to handle. Saves time, gives perfect results without arm-aching drudgery. Perfect for side trimming and shaping – cutting weeds, coarse grasses. A precision instrument and powered to do long tedious trimming jobs.

SPEEDLINE LAWN AND GARDEN TOOLS are a 3PTEDLINE LAWN AND CARDEN TOOLS are a complete matched set of the 20 most sopular types used by home gardeners. Specially designed for light weight and strength, Heads are one-piece steel forgings, heat treated, Handles are ash, finished with weather-esisting blue lacquer for identification and matching eye appeal.

For people over 40 - for Profess ror people over 40— for Professional Truck harms and Poultrymen—it's WATERBURY PORTABLE POWER as the Down Payment an Productive lesiure and Great Yields at lower costs. Remember Waterbury's all-time record law in service and maintenance costs—a specific Profit Factor.

THE WARNER CO., Chicago, interprets today's THE WARNER So.,
textured trend in wall decoration with their
BAMBOO TEXTURE WALLPAPER from their new
Allertian Its colorful, yet subdued, Town House collection. Its colorful, yet subdued, bamboo design makes it adaptable to the con-temporary or traditional. There is a plain colored companion fabric for each color style. Samples of wallpaper and fabric are available to the con-sumer for 25c

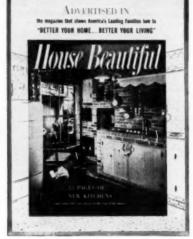
cown mower sales are now in full swing. The new WORCESTER ROTARY AND ELECTRIC MOWERS are proving to be fost sellers, as are the 21-inch Worcester Shear Moster featured in antional advertising and the 18-inch power mower. Get your share of this extra business. Write today for catalogue.

The Hollywood broadloom quality is being presented at the Spring shows by the M. J. WHITTALL Assoc, Inc. of Varcester Mass. It is a plain color carpet in which the pattern is formed by rondom height pile making a graceful but of the wood design. It is available in grey, beige, juniper and lode green in 27°, 9°, and 12° widths priced in the lower wilton brackets for retail at \$11.50 per square yard.

Now, even though there is still snow on your lawn, NOW is the time to apply VICORO. Melting snow and early spring rain will sook it into the soil feeding the owakening grass roots to give your lown o fine early start. Feed Vigino

This House Will Give You Ideas" and it will, too. Ideas about the greater comfort your customers can get in a CARRIER WEATHERMAKER MOME. Details of the new Air Conditioning Unit which heats and cools to make a house completely pleasantly, luxuriously livable the year around. Offers booklet of complete informations

## THE PRODUCTS <u>You</u> Carry!



# Special of

Want a special display for your windows or counters ... as a prestige influence on prospective customers? It's yours for the asking-featuring a House Beautiful cover and enlarged to a dramatic 21" x 33" size! Simply check the square indicated on the coupon below and mail it to us. But we suggest you do it today. The supply is limited.

**SEND TODAY** for eye catching "Right from *House Beautiful*" display cards, an effective tie-in newspaper mat . . . a special House Beautiful cover display enlargement. They're available free of

For display cards, mounted with advertisements you want to feature, check any or all of the products on the May issue listing below that are preceded by a number. For a mat, in which product names can easily be inserted, and a special cover display, check the squares indicated. Fill in your name nad mailing address, mail to: Merchandising Division, House Beautiful Magazine, 572 Madison Avenue, New York 22, N. Y.

- 1. AMERICAN STANDARD HEATING
- 2. AMTICO RUBBER FLOORS
- 3. ANCHOR FENCES
- 4. BLUE RIDGE PATTERNED GLASS
- PERMANENT MAGNET DOOR CATCH BRIGGS & STRATTON GASOLINE ENGINES
- 6. BRUCE HARDWOOD FLOORS
- 7. BURNHAM BASE RAY RADIANT BASEBOARDS
- 8. CABOT COLLOPAKES
- CABOT CREOSOTE STAINS 10. CAMBRIDGE CERATILE
- 11. CARRIER AIR CONDITIONING
- 12. CASE PLUMBING FIXTURES
- 13. CHAMBERLIN STORM WINDOWS
- 14. CHRYSLER AIR TEMP
- 15. CINCO-THERMOSEAL SCREEN AND
- STORM SASH CONGOLEUM-NAIRN GOLD SEAL
- INLAID LINOLEUM
- 17. CRANE PLUMBING FIXTURES 18. CURTIS SILENTITE WINDOWS
- 19. CUTLER HAMMER MULTI BREAKER
- DEMING CUSHIONETTE WATER SYSTEM
- DOWFLAKE
- 21. DUBOIS FENCES
- 22. ELJER PLUMBING FIXTURES 23. ESTATE RANGES
- 24. FAIRBANKS MORSE WATER HEATER
- 25. GATE CITY WOOD AWNING WINDOWS
- 26. HABITANT FENCES
- 27. HAMILTON CLOTHES DRYER
- 28. HARTSHORN TEXTONE SHADES 29. HEINEKE EXCELLO POWER MOWER
- 30. HOMKO POWER MOWER
- 31. HUNTER ATTIC FANS
  - ILG ELECTRIC BASEMENT DRYER
- 33. INERTOL RAMUC ENAMEL FOR POOLS

- 35. JOHNSTON POWER MOWER
- 36. KIRSCH DRAPERY HARDWARE 37. LORD & BURNHAM DRLYT GREENHOUSE
- LORENTZEN BLINDS
- LYON KITCHENS
- MAJESTIC UNDERGROUND GARRAGE
  - RECEIVER
  - MAJESTIC OUTDOOR FIREPLACE
- MALLARD SCREEN DOOR GRILLE
- 42. MARBLE INSTITUTE FLOORING
- 43. MASTER METAL SANETTE MICHIGAN PEAT
- MILCOR PICK UP CART & TOOL RACK
- MISSISSIPPI STRUCTURAL
- CORREGATED GLASS
- MODERNFOLD DOORS
- 47. MORRISON STEEL FURNACE
- MUELLER CLIMATROL
- 50. NACO FERTILIZER
- SI. DASIS AIR DRIFF
- 52. OZITE CARPET CUSHION
- PERMA-STONE
- 54. PHILCO FREEZER
- 55. PITTSBURGH CORNING GLASS BLOCKS 56. PORTLAND CEMENT CONCRETE HOUSES
- 57. PRECISION FOLDING STAIRWAY
- PRESTELINE BUILT-IN ELECTRIC RANGE
- 59. OLD QUAKER ATOMASTIC PAINT
- 60. RA-PID-GRO
- A1. PIDE-A-MOWER
- 62. ROBBINS & MYERS ATTIC FANS
- 63. ROTO ROOTER SEWER SERVICE 64. RUSCO COMBINATION SCREEN &

- 65. RUSTICRAFT FENCES
- 66. SAVAGE YARD CHIEF 67. SETFAST CANVAS PAINT
- SMITH PERMAGLAS AUTOMATIC
- WATER HEATER
- 69. SOSS INVISIBLE HINGES 70. SPEEDLINE TOOLS
- 71. STASCO TOILET SEAT
- 72. STOCKWELL COUNTRY MODERN WALLPAPER
- 73. STRAHAN WALLPAPER
- 74. SUNBEAM HEDGE TRIMMER
- 75. SWIFT END-O-PEST
- 74. TRIM MASTER IR. 77. TRI-OGEN ROSE SPRAY
- 78. U.S. CARPET CUSHION
- 79. U.S. RUG UNDERLAY
- 80. U.S. QUARRY THE
- 81. UPSON KUVER KRAK
- 82. VIGORO
- 83. WARNER BAMBOO TEXTURE WALLPAPER 84. WATERBURY PORTABLE LOWER
- WERSTER RASEROARD HEATING
- 85. WHITTALL BROADLOOM
- 86. WIN-DOR JALOUSIES
- 87. WINKLER AUTOMATIC HEATING
- 88. WORCESTER SHEAR MASTER
- \* No card available

**ADDRESS** 

- "Seen in House Beautiful" Mat SPECIAL COVER DISPLAY

### ON and OFF the RECORD

MAN OF THE YEAR—It's Gene Klein, the citizen mayor of thriving Amarillo, Texas, The News Globe-Times, local newspaper, voted him the 1951 Award for Community Service. Stating that a citizen mayor serving for virtually no salary might



Gene Klein

"justifiably go about his own business, leaving the running of the city to the city manager," the newspace comments that Mr. Klein has made a full time job of his mayoralty, spending as much time at the City Hall as he does in the office of his Star Lumber Co.

STANDS FIRMLY—"The mayor," says the newspaper's editors, "has had to say 'No' firmly and often, and so he has made enemies. This newspaper has not always been in accord with him, but the mayor of a town the size of Amarillo can't be expected to please all the citizens all the time."

TRAVELS WIDELY—"He travels frequently and far," continues the newspaper. "He has argued railroad presidents out of underpasses. He has kept the state highway department aware of the acute traffic problem here. He has maintained the city's water supply ahead of demand. He has wrestled with tough problems. Wisely he has hired experts to advise him in his work."

NO SURPRISE—To hundreds of builders and retail hunbermen who know this dynamic and personable Texan, the newspaper's choice comes as no surprise. And speaking of public relations, isn't this kind of volunteer leadership in civic development about the best there is?

CELLARS VS BASEMENTS— W. G. Stephens of Phoebus, Va., really started something when he questioned the use of the word "basement" in a recent American Builder story, Of all the volunteer entries into the debate, one from J. H. Lilly, building inspector of Cedar Rapids, Iowa, seems to represent the consensus most completely. It's in accord with what Mr. Stephens claimed in the first place.

THE IOWA LAW—Says Mr. Lilly, "the law of the State of Iowa defines cellars and basements as follows: "A basement is a story partly underground, but having at least one-half of its height above the curb level, and also one-half of its height above the highest level of adjoining ground. A basement should be counted as a story. A cellar is a story having more than one-half of its height below the curb level, or below the highest level of the adjoining ground. A cellar shall not be counted as a story for purposes of height measurement."

BUILDING CODES-Mr. Lilly continues, "The Basic Building Code of the BOCA and the Uniform Building Code of the P.C.B.O. both carry definitions of basements and cellars. In the various Departments of Building Inspection these definitions are very much in use, especially in multiple dwellings, for the purpose of determining whether or not apartments may be located below the first floor of the building. A typical cellar as defined is not suitable for living quarters, while a basement can be so utilized, provided other requirements are met.

PHEW!—It's been a long pull to get this subject thoroughly aired—or excavated. And now, in spite of the practice of most architects to label any sub-terranean or partly sub-terranean story "basement," guess we'll have to alert the staff to measure the heights against the curb levels and adjoining ground, and then pick the right term.

ALIBI—It is inexcusable, of course, but we had always held the opinion that a cellar was merely an undeveloped basement—dirt floor, unfinished ceiling, unfinished walls—a place that was supposed to be cool and damp for the storage of roots. We thought it was the earth floor under an old-fashioned farm house that determined a cellar, and that it became a dignified thing called a basement merely by providing a floor, and dressing it up.

KIWANIAN OF YEAR—In Durham. North Carolina, the Kiwanian of the year is James H. Coman, Jr., of the Coman Lumber Co. He was awarded the title and the trophy that goes with it in recognition of his "work as chairman of the Agricultural Committee which sponsored the Fat Stock Show and Sale in April, 1951."

THE COMANS—Jim, Sr., with three talented sons due home from the war in 1946, anticipated their problems, and started a lumber yard in Durham. With one boy an architect, (Continued on page 36)



James H. Coman. Jr., Kiwanian of Year, see story above

# New <u>Homes Sell Faster</u> With

# DELCO-HEAT

Says N.Y. Builder

Delco-Heat "OPC" Conditionair—a vertical-type, oil-fired forced warm air furnace—designed for utility room, alcove, or closet installation or wherever floor space is limited. Three sides of the unit are clear of flue outlet and controls so it may be easily installed in recessed areas. Capacity 75,000 BTU per hour output. Other Conditionair models to 200,000 BTU output also available.



"We have used Delco-Heat in our homes on Long Island because of the terrific sales appeal it has with the buying public," writes Mr. Jack Wyn, President, Wyn Homes Inc., Great Neck, New York. "We have found that Delco-Heat Conditionairs are the most economical furnaces we can install. And many customers have told us how pleased they are with the performance of their Delco-Heat units."

Wheeling Metal Fabricators, Inc., Hempstead, N. Y., made the Wyn Homes installation. Pictured above, from left to right, are Mr. Jack Wyn, Mr. Irving Steckler, of Wheeling Metal Fabricators and Mr. Nat Eisenberg, of Wyn Homes, Inc.

Delco-Heat oil-fired steel boilerfor radiant heating systems—or conventional steam or hot water systems in popular size homes. It's ideal for installation in restricted areas or utility rooms. Available with round or cabinettype jacket. Net rating, 300' steam or 480' hot water radiation.



The sales appeal and prestige of General Motors Delco-Heat is becoming increasingly apparent to builders all over the country. Home owners demand the highest quality, most dependable heating equipment available and that's what they get with Delco-Heat.

Builders especially like Delco-Heat because the line is complete. There is a Delco-Heat Conditionair, boiler or burner to meet every builder's need. And Delco's low, competitive prices fit any budget.

Delco makes gas or oil-fired heating equipment for any size home -any type heating system. Get the facts now! Send coupon below.

## For a good deal DEAL WITH DELC



Oil-fired



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DELCO APPLIANCE DIVISION, Dept. AB GENERAL MOTORS CORP., Rochester 1, N. Y.

Please send me complete details and specifications on all Delco-Heat units.

-- CLIP AND MAIL TODAY! ---

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Address

...

7 6 ...

#### On and Off the Record

(Continued from page 34)

another endowed with administrative ability, and a third with unquestioned sales ability. Jim. Sr., reasoned that a retail lumber and building business was an enterprise that all four, including himself, could run happily and successfully. He was right. Again, speaking of public relations, it appears that Jim, Jr. is doing very well.

ED KIRWAN—Writing to his Congressman this Kentucky retail lumber dealer proposed "that for the period of the emergency Congress set the basic work week at 50 hours instead of 40, and forbid any and all premium pay, regardless of any contracts or agreements to the contrary, until after the fittieth hour. I believe that the increased production resulting from such extension of work time would greatly lessen the impact of the war effort on the civilian economy."

THE REPLY-In part Kirwan's Congressman agreed. In fact, he did agree, but stated that "I am afraid that from a practical standpoint this will be very difficult to accomplish during the life of the present Congress. The errors of the past half generation are catching up with us and sometimes I am quite discouraged as to the outlook for the future." As stated in this column some time ago the only reason the work week was pegged to 40 hours was to distribute the work during the depression. Now, if production is a matter of life and death, what's wrong with a presidential order to step it up to 50 hours? Of course, we're being naive when we ask the question. We know the answer as well as anyone else. But it's still a good question.

PERFECTION—Out of one of the winter conventions came this provocative thought. It's author said, 
"There is no such thing as a perfect 
salesman, and there never will be. A 
salesman PRACTICES selling just 
exactly as a physician PRACTICES 
medicine. Merchandising and medicine are always changing, and it is 
continuous application of practice to 
both that determine the effectiveness 
of either a salesman or a physician."

TAX LEGISLATION—On January 21 the Georgia House passed a tax limitation resolution. Similar action by five more states is needed for the introduction of a bill in Congress designed to limit personal and corporate income taxes to 25 per cent of gross income.

SAY IT AGAIN—That's what Gates Ferguson, Celotex director of advertising, has been doing in a forceful, down-to-earth way for the past several years as a feature speaker at lumber dealer and home builder meet-



Gates Ferguson

ings. He talks merchandising—what it is, and why it must be improved. In great demand and as a repeat speaker several times before the same organizations, Mr. Ferguson wraps his story in a new package each year—uses the same theme, but gives it a new twist. It's this repeating of the theme that is getting results.

TESTIMONIALS-At several retail lumbermens conventions this year, the conductor of this column has shared speakers' rostrums with Mr. Ferguson, who was making his second or third appearance in each case. Without exception, at the end of each program, a number of dealers came to him to state that they had taken some of his advice from previous speeches they had listened to, and were back for more ideas. A few stated that they had watched competitors put some of the Ferguson ideas into use, and had come to the convention to make notes on what they evidently were passing up.

THIS IS PROOF-That Ferguson's ideas are catching on is definitely proved by the testimonials he is receiving in person. That he should continue preaching his gospel of merchandising over and over again to the same people, and to new members that he adds to his audience each year is proved by the fact that the same people do come back year after year for more ideas. Again, it's this business of sticking to the theme year after year that gets results, and as Ferguson presents his fresh, new, package of merchandising ideas and principles annually, interest and results multiply.

LOS ANGELES—The public housing battle, raging at white heat in this city, is producing a tremendous impetus to cleaning up broken down houses. Opponents of public housing

have always maintained that most of the problem of sub-standard housing would disappear if the sanitation and public safety laws were enforced. Since the big push for law enforcement started a few weeks ago 350 houses were placed in livable condition by their owners.

PUBLIC SUPPORT—Home builders in Los Angeles have enlisted the solid support of churches, Parent-Teacher Associations and other civic groups.

THE PROBLEM—It's finance. Noticeable is the fact that the owner of a broken down property can get money to purchase a television set, but can't get money for a new roof. Currently, the problem is being attacked by starting a lending institution for the purpose.

REPAIR MARKET—With financing made available there will be a tremendous market for materials for repair and rehabilitation in Los Angeles. And, if Los Angeles home builders can solve the problem of rundown properties, so can builders in other cities.

MANUFACTURERS—If the new home market is cut back below production potential for many materials in 1952, it might be well for manufacturers to think of tailoring some of their advertising to telling how to use their materials in repair and rehabilitation.

NATIONAL HOME WEEK—It is a natural, simple, easy and highly effective public relations program, and the most successful merchandising program the home building industry ever had.

DEALERS—But, why hasn't it caught on with retail lumber dealers? Only a few score of them have conducted National Home Week observances in their communities. Those who have, endorse it with enthusiasm. What about the others? Why doesn't the idea click with all of them?

FORTY PER CENT-There is. or can be, a great difference between a cutback of 40 per cent in critical metals for housing and a 40 per cent cutback in housing starts. The difference can, and probably will be measured by the ingenuity of builders in finding ways to stretch critical metals over more houses than heretofore, and in finding ways to perform some construction operations without metals, where they have been used in the past. Unless government, for reasons that have nothing to do with material supply, decrees a flat cut, 1952 will see close to 1,000,000 starts. only BH&G is so <u>both</u> ways!

# It's the world's only package of $3\frac{1}{2}$ -million ideal building materials prospects — screened for the BUY on their minds!

7 out of 10 families building new homes read Better Homes & Gardens! But that's only the beginning—

BH&G, with 3½-million circulation, is the top-ranking magazine of special interest to all families owning, maintaining and improving homes!

BH&G families have bigger-thanaverage incomes. They repair or remodel their bigger-than-average homes at the rate of 1¾-million jobs a year!

These are all mighty good reasons

why ads about your wares do so much for you in BH&G — but here's the biggest reason of all: BH&G families are editorially screened for the BUY on their minds—for their interest in, and

minds—for their interest in, and ability to buy, what's new or better. AND—these 3½-million families consider BH&G their friendly counselor on all home improvements!

No wonder lumber and building materials dealers—by a vote of 7 to 1—acclaim BH&G as their greatest selling aid among all magazines!



Serving a SCREENED MARKET

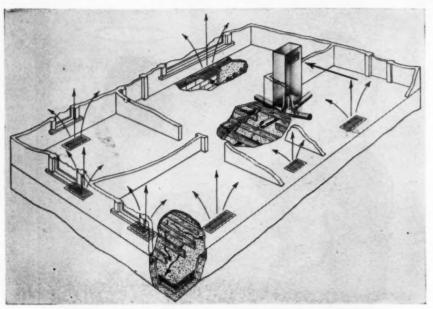
of 312-Million Better Families

MEREDITH PUBLISHING COMPANY, Des Moines, Igwe

**APRIL 1952** 



#### TECHNICAL GUIDE for Builders and Craftsmen



CRAWL SPACE PLENUM SYSTEM of perimeter heating is used only in a crawl space house

#### **Crawl Space Plenum System of Warm Air Heating**

discharges heated air, circulated freely through the crawl space, so that it enters the room directly through registers placed in the floor, which serves as a radiant panel

IN this system the entire crawl space is used as a warm air supply plenum or chamber. Stub ducts from a sheet metal plenum suspended from the floor joists distribute the heated air evenly through the crawl space. Warm air then enters rooms above through perimeter floor registers placed beneath the windows. With this combination forced warm air and radiant system a substantial part of the heat required by the room is supplied by the warmed floors.

CRAWL SPACE PREPARATION. The preparation and treatment of the crawl space walls and floor are of the utmost importance. All organic matter from the earth beneath the structure must be removed. Foundation walls must be well constructed and insulated. A protective covering must be laid over the ground to avoid moisture problems.

The crawl space must not be used for storage. The

access opening (not smaller than 18x24 inches) must be equipped with a tight fitting door. The floor of the habitable areas above the crawl space must not be insulated. The crawl space floor must be at least 18 inches and not more than 24 inches below the bottom of the floor joists.

**FOUNDATION WALL CONSTRUCTION.** The walls should be constructed to minimize air leakage, moisture penetration and heat losses through them. The outside of the walls should be covered with ½-inch coating of portland cement plaster and then given a heavy coat of undiluted hot tar or asphalt.

The heat loss through the crawl space must not be greater than that of the rest of the structure above. A - 20/2-inch-thick vaporproof insulation board can be nailed or cemented to the inside surface of the wall. The insulation should completely cover the foundation wall from a few

#### WOOD WON'T ROT WHEN IT'S

Living fungi, which break down the substance of wood are microscopic and abundant. But they need a certain amount of WARMTH and DAMPNESS to develop. Dampness will also peel off paint, crumble plaster, rust iron and steel.

Some insulations promote and retain destructive condensation inside walls and other structural spaces. In addition to warmth, vapor of water also flows right through asphalt, paper, plaster and most building materials, including ordinary insulations. It condenses when it strikes a colder surface and reaches a dew-point.

An empty space is the best insulator against heat flow by Conduction; but does not prevent heat flow by Radiation and Convection. Of all heat transferred through structural spaces, 50% to 80% is by Radiation; all but 5% of the rest is Convection. Multiple accordion aluminum sheets throw back all but 3% of the Radiation which strikes them, and block Convection. Their insignificant mass, 1 oz. to the square foot, and their multiple air space construction, minimize Conduction.

They have zero permeability to water vapor and all other gases, including air, hot and cold. Because of their structure, they are non-condensation-forming, for a dew-point can never be reached on any of their surfaces. Neither can they sustain nor retain fortuitous moisture.

Simple and illuminating discussions of vapor and heat flow, including explanations of how to prevent timber rot, will be found in the just-off-the-press, completely revised, 5th edition of "Simplified Physics of Vapor and Thermal Insulation," 56 pages of facts and figures.

The commercial forms of tough, multiple accordion aluminum sheets are Infra Type 6, Type 4, and Type 4 Jr.

INFRA INSULATION, INC. 525 Broadway, New York, N.Y. — WORTH 4-2241

#### INFRA THERMAL FACTORS. TYPE 6

Up-Heat C.089, R 11.23 =  $4_5^{11}$  dry reckweel Wall-Heat C.073, R 13.69 =  $5_5^{11}$  dry reckweel Down-Heat C.044, R 22.72 =  $9^{11}$  dry reckweel

525 Bro Please	INSULATION, INC. sadway, N.Y., N.Y. Dept. B-4 send FREE "Simplified Physics of and Thermal Insulation," new, re- th edition.
Name.	
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#### TECHNICAL GUIDE for Builders and Craftsmen

(Continued from page 38)

inches above the crawl space floor to the top of the masonry. The insulation must not extend down into the ground. The outside walls between joists from top of the plate to bottom of the floor boards must also be well insulated.

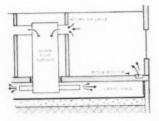
All openings and cracks through walls that lead to the outdoors must be scaled to prevent moisture penetration and air leakage.

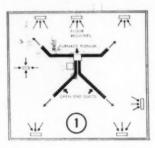
**VENTILATION.** Vent openings in outside walls are required by FHA to minimize lumidity conditions. A minimum of two vent openings are required with a total free area of one square foot for each 100 lineal feet of outside wall. Vents must be closed during heating season and opened during the summer.

#### **Crawl Space Plenum System**

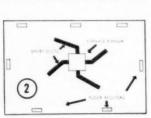
The floor of the crawl space must be treated to prevent the heated air from coming in contact with moistureladen surfaces. One acceptable method is to place a moisture membrane upon the earth and pour a two-inch-thick slab over it. Another method is to place a four-inch-thick layer of coarse fill upon the ground surface and cover it with a moisture-proof membrane. This must form a continuous covering over the entire area with joints between laps (at least four inches) sealed with a suitable compound. The membrane must be carried up the side of the foundation at least six inches and terminated under the foundation wall insulation.

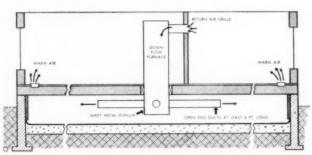
CRAWL SPACE PLENUM SYSTEM. This system differs in many respects from any other that has been (Continued on page 44)



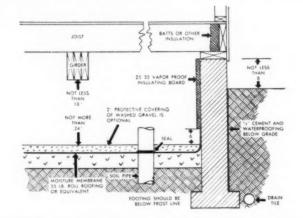


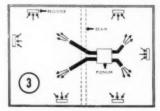
PLANS numbered 1. 2. 3 and 4 indicate methods of installation for various plan arrangements. Air from the furnace is delivered into the crawl space through a minimum of four ducts, each at least six feet long. These ducts are necessary to evenly distribute the heated air and assure uniform air temperatures at each register. When necessary ducts should be more than six feet long so the projected air stream will reach the desired areas

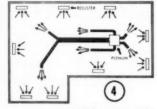




CRAWL SPACE must be tightly sealed to minimize air leakage, moisture penetration







#### Ideas for the Man on the Job

#### A SHINGLING BRACKET



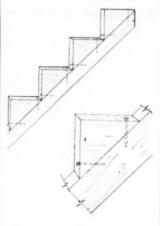
To make an effective shingling bracket take the blocks that are cut out of stair stringers and nail a strip of heavy gauge sheet iron on one side. Nail the top of the metal strip under the shingles and use a 2x6 inch plank on top of wood blocks for a toe hold. The exposed portion of sheet metal is cut off at the edge of shingles when roofing is done.—John Menkveld. Grand Rapids, Mich.

#### SETTING STEEL POSTS



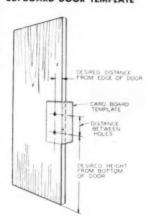
When setting steel posts under an I-beam, weld ½ inch ring on the top and bottom plates the same size as the inside diameter of post. Plates can be welded to beam at the shop. The posts can then be set without welding.—
John Menkveld, Grand Rapids, Mich.

#### **CUTTING STAIR STRINGERS**



To save one 2x10 inch member when cutting stair stringers, use the blocks that are cut out of two stringers to nail to a 2x4 inch member to make the third stringer. This stringer can be used in the center.—John Menkveld, Grand Rapids, Mich.

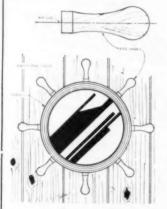
#### CUPBOARD DOOR TEMPLATE



This simple device is a template for marking holes for installing cupboard door handles.

Template is made of cardboard, usually the same box in which the handles are delivered. Mark the holes with a sharp awl.—John Menkveld. Grand Rapids, Mich.

#### TRIMMING KNOTTY PINE ROOM



When making a port hole window in a knotty pine room, trim the window as usual and then take ordinary file handles and rip them in half. Use these cut handles to obtain the wheel effect around window.—John Menkveld, Grand Rapids, Mich.

#### ROOF BOARD BRACKET



This is a bracket that can be picked up and placed anywhere on the roof in the process of applying roof boards or shingles. The bracket is made of 34 inch thick material and of shape to fit the pitch of the roof. Through the bottom member drive several 1½ inch roofing nails so the points show about 3½ inches. This will keep the bracket from sliding.—John Menkveld. Grand Rapids, Mich.

# CUTS COSTS SAVES TIME

... and it's tops in preference with the home owner

Porch Post? Rail? Coffman Ornamental Iron looks better than wood or brick ... costs less... and lasts forever. Coffman Ornamental Iron lends itself to any type architecture, has a rapid consumer turnover and makes possible greater profit for both the dealer and contractor. Installation is as simple as ABC.

#### COMMON SENSE CALLS FOR COFFMAN

. . . at Lumber and Building Supply dealers everywhere. Stock sizes to fit any parch.

FREE: Write for descriptive catalogue on all Coffman Products and complete information on our amazing free air mail blueprint service.

> America's Largest Manufacturer of Ornamental Iron

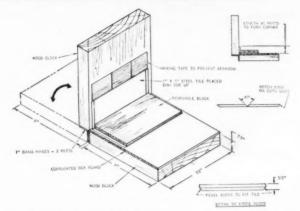
R.G. Coffman Co.

ORLANDO, FLORIDA



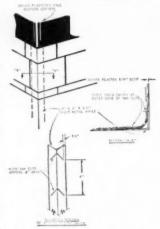
#### TECHNICAL GUIDE for Builders and Craftsmen

#### How to Bend Metal Tile for Corner Installation



A method of bending metal tile at corners is shown in the drawings and photograph here. A jig is made of two 1x6 boards, hingded. Corrugated box board is glued to one board and masking tape to the other to avoid scuffing the surface of the tile. When tile is at room temperature it is placed in the jig. A small block is used to hold tile in place while bending. Edges of the ¾-inch-thick block are beveled to fit tile. Cut the edge of bend before bending. By bending tile at corners a better appearance is obtained than by using hard-to-get chrome strips.—LeRoy Bradley, Lorain, Ohio.





In many of the older houses plastered corners are rounded, especially



at chimneys and cupboards that extend into the kitchen. To make a sharp corner for the application of steel tile, the method shown in photograph above and drawing, left, was used.

No. 16 gauge 1x1-inch sheet metal angles were formed with slots cut as shown with a backsaw. The slots permit adjustment to the wall surface and for nailing angle to wall.—LeRoy Bradley, Lorain, Ohio.

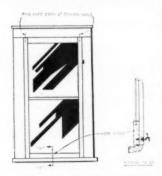
#### Ideas for the Man on the Job

#### PLACING SCREEN MOULDINGS



Nail together screen mouldings shown at B with ends projecting. Saw through mouldings at B with thin saw. Mouldings of various widths may be mitered by sawing on a line through C-C. Window screens with a three-inch bottom rail can be cut this way, or as shown in E-E or C-C.—M. J. Hiland, Lansing, Ill.

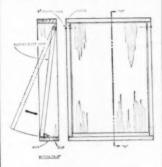
#### HANGING STORM WINDOWS



For hanging stationary storm windows, two pins are placed in the top rail of the sash that fit into corresponding holes in the head casing. Place a hook and eye on the inside to be secured to sill.—John Menkveld, Grand Rapids, Mich.

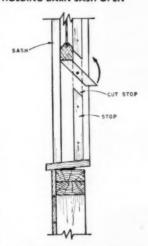
#### **Continued From Page 41**

#### A CLOTHES CHUTE DOOR



A simple method of hanging a clothes chute door is to pivot it on two nails. These nails to be placed about one inch from the top of the door. The door will then close of its own weight.—John Menkveld, Grand Rapids, Mich.

#### HOLDING BARN SASH OPEN



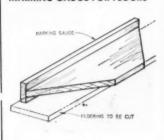
To hold barn sash open, cut the stop on one side on an angle at the desired height. Drive a nail in the center of the cutout portion of stop and then permit sash to rest on one end of stop with the other side of stop against the fixed portion.—John Menkveld, Grand Rapids, Mich.

#### IMPROVISED STAR DRILL



To make an improvised star drill take a piece of pipe of the required diameter and file notches in one end with a saw file. This can be used in a pinch when a star drill is not available.—John Menkveld, Grand Rapids, Mich.

#### MARKING GAUGE FOR FLOORS





Instead of using a mitre square for cutting subfloor make a block with both cuts on either end; nail a cleat on the side and with the use of this gauge the work can be done faster.—John Menkveld, Grand Rapids, Mich.





FIBERGLAS insulation Type PF-613, 2" thick bended to concrete calling using MIRACLE PROMGED ANCHORS at Radio City Stadio 68, New York, N. Y. COM-TRACTOR. WILLIAM Scally, Inc., Rew York, Scally, Inc., Rew York

4.

WOOD RUNNERS installed on controls Boos with MIRACLE ADMESTER and MIRACLE ARCHOR MAILS to support with the solid partitions. Washington, D.C. GENERAL COMPANY, Tompkins Company,



VISIT MIRACLE EXHIBIT AT ARCHITECTS SAMPLES CORP.



#### TECHNICAL GUIDE for Builders and Craftsmen

#### **Crawl Space Plenum System**

(Continued from page 40)

described. All the heated air delivered by the furnace is discharged into the crawl space which then serves as a supply chamber for the registers in the floor above. There is no duct connection between the furnace and the registers.

The crawl space must be considered as an additional room and its heat losses also entered as a room. The perimeter registers should be placed in the floor beneath the windows. The return air grilles are placed near the ceiling. All grilles should be properly sized.

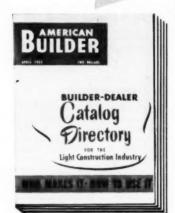
The air from the furnace is delivered into the crawl space through a minimum of four ducts, each at least six feet long, attached to the suspended plenum chamber beneath the furnace. These ducts are necessary to evenly distribute the heated air in the crawl space area and assure approximately equal air temperature at each register,

Judgment must be used in placing these ducts. It is desirable to keep them less than six feet long. When necessary, however, they may be more than six feet long if the added length is needed so the air stream projected from them will reach the desired areas, which are usually the corners of the building. In a small house with a centrally located furnace, a duct should be directed toward each corner of the crawl space. All of them should be the same size and about the same length. If a beam interferes with free air circulation within the space, one or more of the ducts should be extended beyond the beam. In an L-shaped house or one with a portion extending out from the main part, a duct should be extended far enough out to assure the delivery of warm air and good circulation in the crawl space beneath. In an installation of this kind the ducts should be sized in proportion to the percentage of the total heat loss of the structure that is represented by the climatic conditions.

The use of this system may result in more rapid shrinkage of the wood floor and subfloor structural members than in the crawl space houses with other types of heating systems. It should not cause undue concern since it is merely an acceleration of a completely normal drying out process. The recommendations set forth in this text comply fully with the requirements of pamphlet 90 of the National Board of Fire Underwriters.

FURNACE SELECTION. Practically any type of automatically fired, oil or gas burning forced warm air furnace may be used. The down-flow furnace which takes return air in at the top and discharges heated air down-ards from its base is best fitted for this particular type of installation. A down-flow furnace installed on the wood floor of a crawl space house must be set over a plenum of proper size and both the furnace and plenum supported by a base of non-combustible material. The space between the plenum and framing must be packed with fireproof insulation.

Data and drawings through courtesy of National Warm Air Heating and Air Conditioning Association, Cleveland, Ohio. If you know
the Trade Name
but not the maker—
Look it UP
here



#### In the TRADE NAMES Section

This is one of 3 sections printed on colored stock to help speed up your buying of building products.

After each trade name appears the name of the Manufacturer. Then turn to the Manufacturers Section (III) for complete name and address.

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For the big user, try Paine's Toggle Bolt Clamp that grips the bolt when it is to be tightened, so it can be tightened with a screw-driver. It cuts installation time in half and saves the mechanic's fingers. Get Paine Toggle Bolts from your supplier today.



Just drill a hole. Unscrew wing. Put bolt through item to be fastened. Thread wing back on bolt. Push wing through hole.



The wing springs open when through hole. Pull on bolt while tightening to prevent wing turning.



When hanging objects hat must be moved periodically, use a nut and washer as shown above.

#### THE PAINE COMPANY



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Six beautiful standard colors — with others available — and a wide variety of form patterns and surface finishes, make Resolite easily adapted to any architectural or decorative motif in home, office or shop. Resolite is unequaled for skylighting because it materially reduces heat rays with little loss in light value. It diffuses light in all directions avoiding the harsh contrast of sunshafts.



Resolite is made of stable polyester resins, reinforced with Fiberglas mat. It is unaffected by weather extremes of heat, cold, moisture. It can be worked with ordinary tools and skill.

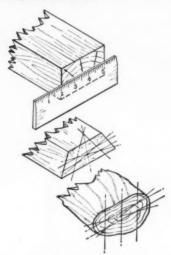
"Wills for tree literature, with complete information about \$550131.

RESOLITE Corporation



#### TECHNICAL GUIDE for Builders and Craftsmen

#### How to Find the Center of Any Irregular Member



Where an irregular piece is used for lath work and it is necessary to find the center, first lay the piece to be worked flat on a bench and mark across end. Turn piece one fourth the way around and make second mark. Make the other two marks in the same way. If the piece is circular make marks approximately at right angles to each other. The center of the small figure will be easily determined for lath centers.—M. J. Hiland, Lansing, Ill.

#### A Spool for Plumb Line



A handy way of carrying and using the plumb line is to wind and store it on an empty adhesive tape spool. The plumb line (3) is tied to and wound on the tape spool (1), with the plumb bob tied to the other end of the plumb line (3). The spool cover (2) is slipped partially off the spool (1) when the line (3) is wound and unwound. When the line (3) is stored or ready for use, the spool cover (2) is closed, thus clamping the line (3) tightly between the spool (1) and cover (2), preventing line from unwinding further than desired.—W. W. Howe, Longview, Wash.



READY FOR ACTION IN WASHINGTON with NAHB President Alan E. Brockbank opening the session

#### Congressmen Impressed as Builders Swap Ideas At Trade Secrets Meeting in Washington

bank conducted the two-hour session

in the absence of his predecessor,

W. P. "Bill" Atkinson, who pio-

neered the "trade secrets" movement.

More such informative meetings are

HERE a builder finds out how to save both metal and costs with a new heating design. There a developer turns up a new style of window. Across the continent, a novel storage wall idea proves practical. And so it goes: the ingenuity of the local home builder continues to meet the test of high costs and material shortages.

After months of spreading success stories among themselves and those closely allied to the industry, NAHB members produced a highly affective "trade secrets" presentation in Washington last January during a time when NPA was considering further restrictions.

It was no secret that the more than a dozen Congressmen and Federal officials who attended were noticeably impressed while listening not to skilled orators but to builders from all sections of the country, proudly disclosing their part in a vast cooperating drive to build better value into housing.

NAHB President Alan E. Brock-

on the way.

V-SLOT CONCRETE BLOCK offered by Martin J. Bartling Jr.. Knoxville, Tenn... who estimates its use can save about 200 linear feet of wire per house. Exterior is designed to look like shingle siding. Next to Bartling (at mike) is scale model of his storage wall closet, built of wood to effect savings on shelving. flooring, hardware and trim



TWO FITTINGS DO WORK OF NINE in this arrangement, making possible an extra hali bathroom for only \$55 more. This is an innovation of Andrew Place

Each exchange in this continuing series produces some new development, it seems. The Washington conference heard the first details about a product of intense research which may, in time, revolutionize the plumbing industry.

Carl Bestor of Purdue University described a new type toilet said to virtually eliminate the need for waste disposal, even though using but a small percentage of the water required in present models.

Pointing out that a river purifies itself after flowing two miles, Bestor said similar action in the toilet is obtained speedily by bubbling air through a tank by means of an air compressor. This is operated at 20 pounds pressure by a one-sixth horse-power motor.

Use of this water closet does away with both sewer and septic tank, Bestor claimed, the only waste connection leading to a 60-gallon drum. The product is now said to be undergoing tests by health authorities.



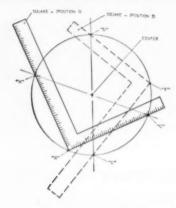
WINDOW UNIT, also exhibited by Place, a wooden awaing type easily washed inside and out. It has a Thermopane glass framed in 1%-inch stock



NEWEST SECRET IS THIS "WASTELESS"
TOILET, being described by Carl Bestor
of Purdue University as a radical new
design needing no sewer or septic tank

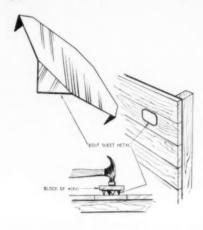


#### How to Locate the Center of a Circle



This is an easy method for locating the center of a circle with the aid of a carpenter's square. Place the square on the circle as shown in position 1, Mark point A, B, and C with a line. Join points D and E with a line. The point of intersection of these lines A-C and D-E is the center of the circle.—Fred Chott, Cicero, Ill.

#### **How to Plug Holes in Wood Forms**



Cut small squares of sheet metal to the required size with sufficient lap for the proper covering of hole. Bend ¼ inch of each corner to form prongs as illustrated. Place the prepared piece of sheet metal over the hole in wood forms. Force prongs lightly into wood surface to hold it in position and then drive into the wood surface with a block of wood and hammer.—Alexander J. Benko, Spotswood, N.J.



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- 5 List of Participating communities in 1951 National Home Week.

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# "Ask The Experts"

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Address your questions to: "Ask The Experts," American Builder, 79 West Monroe St., Chicago 3, Ill.

As many questions and answers as space permits will be published monthly in *American Builder*, under the head—"Ask The Experts."

#### **Furring Strips**

To eliminate nailing strips and the extra thickness, it is proposed to apply ½-inch insulation board decorative plank 16 inches by 12 feet to a painted plastered brick wall with adhesive. The walls are in good repair and are not too uneven. Can a durable job result and what kind of adhesive should be used? Is spotting the adhesive better than spreading it?

B.D., Wonewoc, Wis.

We would suggest that you move with caution in regard to applying the material, such as you suggest, directly to plastered brick walls, providing, of course, that the plaster was applied directly to the brick wall.

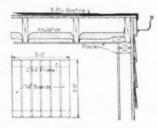
As a rule, you will invite an unpleasant moisture condition when you apply the insulated plank without furring strips. However, if the walls have been plastered for some time and you have not run into that condition, then it may be safe to use adhesive on the material. Adhesive should be spread over the entire surface with a notched spreader.

#### **Leaking Roof**

I have a laundry room in my basement that is under our porch. When it rains, water seeps through the wooden deck and makes the laundry room damp and cold. I thought of concreting the deck but that is too expensive. How can I waterproof the deck so that I can insulate and install heat in the basement. I would like to cover the deck with some material as seamless as possible and not too expensive.

A.B., Philadelphia 29, Pa.

I believe that your best answer to the problem would be to apply a 90 pound roll roof directly to the wood deck. In order to prevent the surface of the roofing from being scuffed up from the porch traffic, it would be necessary to place a remayable wood deck on top. This wood decking would



cover the entire surface of the porch but would be built-up in approximately 3x3-foot sections for easy removal, and also for proper drainage. The decking squares could be made of 1x4 or 1x6 boards spaced one inch apart. The boards can be nailed to 2x4 inch framing members, laid parallel with the pitch of the porch floor.

#### Cement Base Paint

About two years ago a new house was constructed of cinder blocks and was painted with two coats of white Aquella. I am considering repainting the cinder blocks this spring with white cement and lime mixed, five parts of cement to one part of lime. I am familiar with the wetting procedure before and after. Please let me know whether I would get satisfactory results?

G.P., New Milford, Conn.

Rather than attempting to cover the present surface of the wall with the white cement and lime mixture, it would be better to purchase a prepared cement base paint that would correspond, or be equal to, Federal Specifications T.T.P. 21. The prepared cement base has a water repellent in the mix which is essential. The mixture that you attempt to prepare yourself does not have the hiding power or qualities that are obtained in the prepared material. If you use according to the manufacturer's instructions, you should get satisfactory results.

#### **Concrete Finishing**

Many architects specify a 4inch mesh reinforced concrete underslab, covered with a mopped waterproof membrane, and topped with a 3- or 4-inch slab.

We find it difficult to get a nice finish job on the top slab due to quick setting and shrinking, leaving a pattern of wide cracks. In hot weather I have seen cement set hard in 10 minutes, after pouring. The bulk cement used in our transit mix, is usually hot from the kiln.

Is there any method of pouring or a retarder that we can use to get a better finish job?

W.O.D., Riverside, Calif.

Judging from the fact that you are having difficulty getting a good finish from cement on the top slab due to quick setting and shrinkage, it would appear that the temperature of the transit mix is too high. This causes the concrete to set too rapidly. The correct temperature should be 70 degrees or less.

The quick setting, shrinking and the appearance of the wide cracks could be attributed to a number of causes. The brazing or cracking could be caused by over-finishing of the cement which causes the water to come to the surface and be quickly evaporated.

The quick evaporation can also be caused by the hot sun pouring down on the freshly poured slab. If possible, shade should be provided for the slab. This would ward off the hot sun. Another reason is that the bottom slab could be too hot at the time of the pouring. The mopped waterproof membrane's black color would have a tendency to absorb and hold the heat. In correcting the heat problem, you will correct the difficulty.

#### **Aluminum Sash**

About two years ago I purchased some aluminum casement windows. I have not installed them yet and have stored them in a good dry room with no heat. I have noticed some dark streaks on them and rubbing these I found small cavities in the metal. Do you have any information on this condition? Is there a paint or a coating I could put on them to stop this condition?

F.H.M., Waynesburg, Pa.

I would suggest that you take the windows out of the storage area, thoroughly rub them with steel wool and clean them. Then apply one coat of clear lacquer over all the exposed surface. This will keep the frames in good condition until they are ready to be installed.

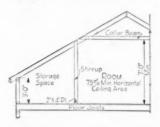
#### **Unfinished Attic**

I am seeking information on construction details for an unfinished attic in a Cape Cod style home. Better, Homes and Gardens referred me to your magazine. Can you help?

J.S., Fairlawn, N.J.

It is rather difficult to give a clear and concise answer to a problem such as yours where information is meager and sketchy.

We are assuming that your house is the typical Cape Cod with a vertical knee wall of about 30 inches, with the balance of the wall following the slope of the roof rafters. In order to



make this space available for a room area, vertical studs 16 inches on center should be placed parallel to the present knee wall so that a minimum of five feet shall be established for this vertical surface. Top and bottom plates, of course, shall be placed on the present rough floor and the underside of the rafters, on which to secure the studs. Two by four collar beams spaced 16 inches O.C. or the same as the roof rafters, shall be placed horizontally at the established ceiling line. These collar beams to be secured to the roof rafters.

Most building codes have set up definite requirements in regard to the development of attic space. Basic requirements are that knee walls shall be a minimum of five feet in height, and that the flat area of the ceiling of the room shall not be less than 75 per

cent of the floor area. Also, that the ceiling height shall not be less than seven feet from the finished floor to the finished ceiling.

It is recommended that insulation be installed in the walls, the exposed roof rafters, and the ceiling around the room or rooms to assure maximum comfort.

#### Renewing Marble

Could you please inform me as to a good way to clean, finish, or repolish marble.

J.H.S., Oelwein, Iowa

Old marble that is dull can best be cleaned by using oxalic acid and tin oxide to form a paste. To apply it to the marble, make a burlap or wool mop that has been moistened. Dip the mop into the mixture of oxalic acid and tin oxide and rub vigorously on the surface of the marble. This should renew the surface.

#### **Correct Sander**

I would appreciate very much if you would recommend a reliable type of power sander for smoothing gypsum board taped joints.

E.P.T., Schenectady, N.Y.

An orbit type of sander has found favor with a great many of those engaged in this type of work. It can be purchased from any of the leading power tool manufacturers.

#### Laminated Gypsum Wallboard

Could you give me information on laminated gypsum wallboard? I would like information of size of nails and types of cement. Also tell me what type of spreader blades are used.

H.A.Z., Garden City South, Long Island, N.Y.

The Gypsum Association recommends that 13 gauge, cooler type uncoated nails spaced 5-7 inches O.C. on the ceiling and 6-8 inches O.C. on the side walls be used to hold the first layer. The second ply gypsum wall-board is laminated to the first with the same cement as used for the joints, or that recommended by the manufacturer.

Adhesive is applied to the back side of the wallboard with a notched trowel in an irregular pattern to an even distribution. The adhesive should extend to the extreme edges of the wallboard. The trowel notches should be approximately ½x½ inches and not more than two inches O.C.

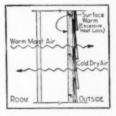
The second layer can be nailed to

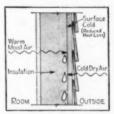
hold in place or shorn, in lieu of nailing. Nails can be placed 12 inches O.C. on the ceiling and 16-24 inches on side walls. Permanent or temporary scaffolding nails can be used,

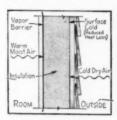
#### Will Insulated Sheathing Hold Paint?

There is a problem that I have failed to see answered as yet and I wish to "Ask the Experts" for an answer. I have heard the question argued but every one seems to have a different answer. The question is: Will wood siding or a composition board hold paint if applied directly against insulated sheathing? If not, what is the difference in applying it against wood sheathing with a waterproof paper between?

W.F.W., Addison, Pa.

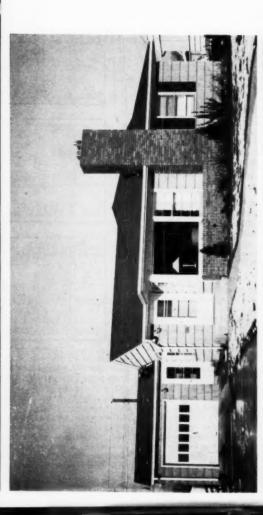






There is no problem in holding paint on wood siding or composition board providing a good moisture barrier is placed against the inside face of the vertical studs. Condensation and moisture develop inside a wall surface when warm moist air from the inside comes in contact with the cold exterior surface. The moisture barrier on the inside prevents the warm air from going through the wall, thus eliminating the moisture.

# AMERICAN BUILDER BLUEPRINT HOUSE







Relocation of chimney is one positive design change in these houses. Basic changes in roof lines and exterior materials further distinguish the models, one from the other

# One Plan... Three Exteriors

Architect:
Norman R. Johnson,
St. Paul, Minn.
Builder:

Twin City Bldg. & Improvement Co., St. Paul, Minn. THREE designs from the same plan, with each design disfunctive in its own right as if it were a custom-prepared job, features this month's American Builder Blueprint House. The variations are accomplished through judicions use of materials, colors, and changes in roof arrangements. By relocating the fireplace chinneys and altering the fenestration a distinctly modern note is obtained in one house.

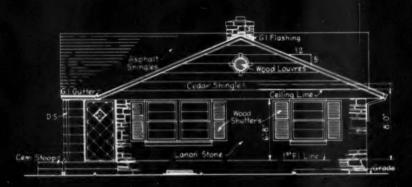
estration a distillety modern hole is obtained in one house.
Each house contains approximately 1,000 square feet of living area, exclusive of the garage. The sale price of each is \$17,000, including a 60 by 125-foot lot in an exclusive section of the city. The price includes a concrete drive, walks, and complete landscaping, including shrub.

A living room, dinette, kitchen, three bedrooms and a bath, and the average number of closets comprise the layout of the first floor. A full basement is provided with space devoted to beating, storage and laundering. The attic, accessible from a scuttle in the ceiling of the hall, contains additional storage space. The square type of plan employed produces the greatest amount of economy during the construction.

While the firm that built these houses erects approximately 200 houses per year, they hold to standard construction methods in all work. Short cuts are obtained on the job by men accustomed to using on-the-site power

equipment,

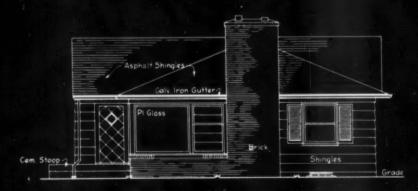
Basement walls are built up of concrete blocks, waterprofed with an exterior cement coating. Floor and wall framing are of wood, with brick or stone veneer on from, Roof is covered with asphalt shingles. Exterior surfacing of frame walls is double coursed siding shingles.



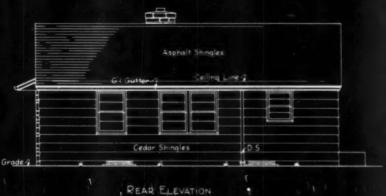
FRONT ELEVATION



RIGHT SIDE ELEVATION



ALTERNATE FRONT ELEVATION

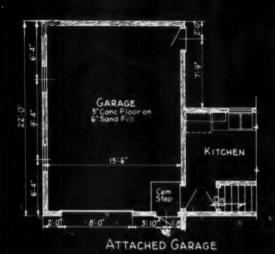


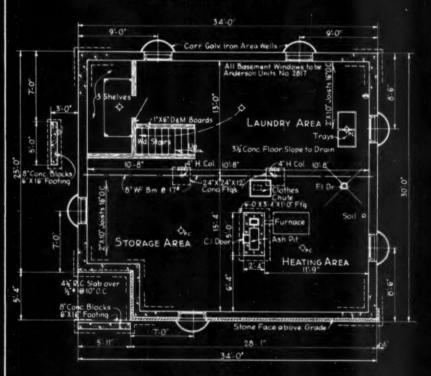


LEFT SIDE ELEVATION



ALTERNATE LEFT SIDE ELEVATION





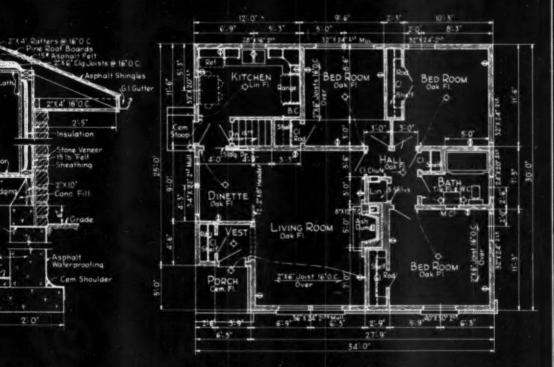
BASEMENT PLAN



WALL SECTION



ALTERNATE FLOOR PLAN



ION

FIRST FLOOR PLAN

DESIGN NO. A.B. 178

AMERICAN BUILDER BLUE PRINT SERIES Designed By

Norman R Johnson Architect. 664 So Cleveland Ave St Paul Minn. 5.mmons Boardman Pub. Corp. 79 W Monroe St Chicago, ILL.

#### **Quantity List of Materials**

#### For American Builder Blueprint House No. AB 178

Norman R. Johnson, Architect

House — Type Frame — Veneer Front
Area 990 sq. ft.
Cube
Porch — Area
Excavating
Trench for foundation
Chimney and column footings 3 cu. ft.
Excavation for basement
Cement Work
Foundations
910 sq. ft. 12 in. block 150 sq. ft. 18 in. block
Concrete Work 866 sq. ft.
Waterproofing 1,025 sq. ft.
Wire Lath
Miscellaneous , , , , 50 sq. ft. perch stoop, $4\%$ in, thick, reinforced
Masonry
Type Stone
Walfs
Window Sills
Chimney Brick or stone
Flue Lining
Cap Cement
Fireplace Brick or Stone Throat and Damper 1 Lintels 1
Miscellaneous Ash drop and cleanout doors
Iron Work
Structural 720 pounds
Miscellaneous 80 L.F. 1/2" reinforcing rod
Millwork
Windows — Type Double hung and basement casements
Windows glazed including trim
7 — 2 is. 32°x24" 1 — 2 is. 24°x20"
1 — 2 lt. 40"x24"
2 — 2 lt. 36"x24"
1 — 2 it. 32"x20" 6 — 6 it. 28"x17"
Exterior doors
Type — Sosh
Exterior millwork
Louvers — 3
Interior doors including jamb and trim 7 — 2'0"x6'8" 6 — 2'6"x6'8"
6 — 2 6 x 6 8 1 — 2 4 x 6 8
Special Interior Doors 1 of the 2'6" deers is sliding

**General Information** 

	arpentry
loists	24 — 2"x10" — 16' 26 — 2"x10" — 12' 4 — 2"x10" — 10'
Bridging	
Studding and Plates	50 — 2"x4" — 12' 8 — 2"x4" — 14' 20 — 2"x4" — 16' 3 — 2"x6" — 8'
Ceiling Jelst	16 - 2"x6" - 16' 5 - 2"x6" - 20' 13 - 2"x6" - 14' 30 - 2"x6" - 12' 2 - 2"x8" - 10'
Roof Rafters	54 — 2"x6" — 16' 10 — 2"x6" — 18'
Framing Lintels	6-2"x8" - 8' 1-2"x6" - 8'
Subfloor	1070 b.f.m.
Side Wall Sheathing	1650 b.f.m.
Side Wall Materials	
	or wall material for lath and plaster 2 — 2"x12" — 14 34 lin. ft. 2"x10" 34 lin. ft. 1"x 8"
	200 b.f.m. D&M for basement
Flooring	Hardwood — 700 sq. ft. area to cover Softwood — 120 sq. ft. area to cover Tile floor and wainscot in bathroom
Exterior Material	
Soffits Eaves	
Insulation	860 sq. ft. double thick balsam wool 1000 sq. ft. standard thick balsam wool
Rain	n Conduction
Gutters	
Downspouls	
Flashing	Valley, chimney, window heads
	Roofing
Type: 210# composition sh	ningles Area: 11 squares
. Net Trom composition an	
	erior Walls

This quantity list will be subject to variation depending on the common practices in various sections and municipalities of the country, the techniques of individual builders, the types of materials available locally and cost factors. The list published here is a suggested one, complete enough so that it can be used in arriving at a reasonably accurate estimate of the quantities and cost of materials that will be required to complete the structure. It was prepared by experts at the Edward Hines Lumber Co., Chicago.

Special Interior Millwerk ......

kitchen cases and counter tops



#### HOW TO PICK THE RIGHT HEETAIRE

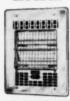
for every room You Build or Modernize



Series 200 HEETAIRES



Series 230 HEETAIRES



Series 240 HEETAIRE



Series 210 HEETAIRES



Series 250 HEETAIRES

The FOUR FACTORS to be considered in choosing specific HEETAIRES for specific jobs are:

- 1. Size of Room
- 2. Exposure of Room
- 3. Use of Room
- 4. Climate

These four factors — size, exposure, use and climate — are the keys for selecting the specific HEETAIRES and temperatures necessary to heat any room.

In general, wattages per cubic foot determine the size of HEETAIRE recommended—but these wattages vary according to heat loss in the room (wall, window and door exposures) and according to the outside temperatures (e.g., more wattages per cubic foot are necessary in New York State than in Tennessee). In addition, the use of room to be heated determines the temperature desired and the type of HEETAIRE recommended—radiant (infra-red) heat, or heated air. Radiant heat is recommended for rooms where the primary objects to be heated are people (Series 200, 230, 240); heated air is recommended where general temperature levels are to be maintained (Series 210, 250).

Series 210 and 250 HEETAIRES are recommended for both supplementary and general heating.

FREE! Write for the copyrighted "A Guide to Quick Heating".



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LA SALLE

PRODUCTS, INC.

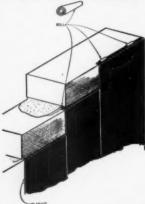
151 SENECA ST. BUFFALO 3, N. Y.

#### No. D-89 Window Wall, Exposed Ceiling

Window walls and exposed wood ceilings are most effectively used in conjunction with post and beam construction of sidewalls and roof as shown in detail drawing on opposite page.

In this case a 5 foot 6 inch wide unit of spacing was established around which the entire plan was developed. Walls are built up of 4x6 inch vertical posts on which are placed double 2x12 roof beams separated with 2x2-inch spacers. These beams bolted to the posts form a frame, which make all walls, both interior and exterior, non-load-bearing or curtain walls. Two inch thick decking, with one inch of rigid insulation and a built-up roof, form the roof surface.

#### How to Flash a Chimney



When flashing a chimney, instead of using flashing hooks or nails, roll together a one inch strip of waste metal about eight inches long into a tight roll until it forms the thickness of the raked out joint. Insert the roll into the joint to hold the flashing and caulk as usual.—John Menkveld, Grand Rapids, Mich.

#### **Cold Drinks Preferred**

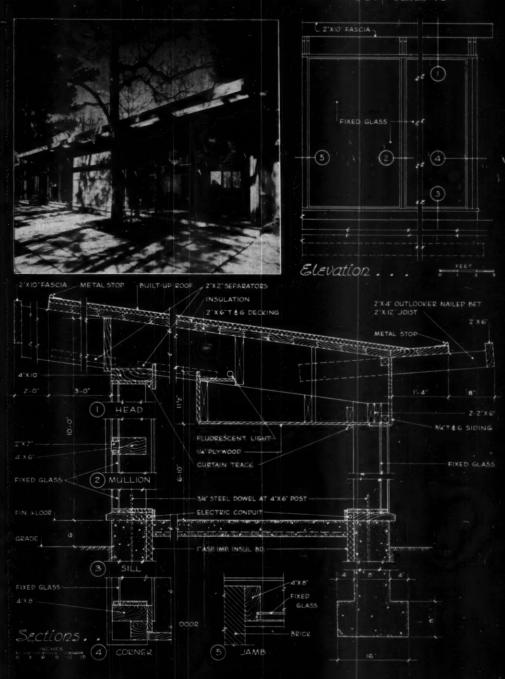
A simple and effective way to keep soda, milk or other drinks cold is to put the bottle into a wool sock, (or other piece of cloth, cotton will do).

Soak the sock in water and hang bottle in a breezy place. The evaporation of the water in the sock will keep the contents of the bottle cold.— Geo. Wilson, New Haven, Conn.

#### AMERICAN BUILDER'S BETTER DETAIL PLATE

Detailed by K. Roderick O'Neal A.I.A. for American Builder

#### NO. D-89 WINDOW WALL. EXPOSED WOOD CEILING





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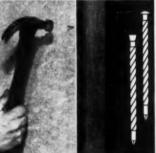
When installing acoustical tile choose a job-designed nail that combines ease of application with these special features: a head end which allows the nail to be driven home without damaging the tiles ... a collar which holds the tiles firmly in place...annular threading which gives superior holding power. The nails are furnished with a plated finish to prevent rust streaks where moisture is present. Send for free samples and descriptive literature.



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#### JOHN HASSALL, INC.

190 Clay Street Brooklyn 22, N. Y. Established 1850

#### No. G-30 Steel Framing for Show Window

This month's detail plate, which deals with the construction techniques employed in the remodeling of a store building, is the first of two dealing with this problem.

The object here was to design a show window ceiling, housing all the necessary lighting effects to permit a brightly lighted display window,

The merchandise that was to be displayed required a window approximately 7 feet 6 inches high. To retain the width and height of the original store front opening, the new show window ceiling was built 7 feet 8 inches above the show window floor, This ceiling arrangement, which projects six feet from the sidewalls, gives the appearance of hanging in space without any visible means of support. To accomplish this, cantilever construction was em-

Due to the fact that the building wall was constructed of 2x4 studs. it was impossible to use this wall for support. To accomplish a cantilever effect, a 3-inch channel vertical tie extends from the bottom of the five inch channel outriggers of the canopy framing, down to the floor level where it is at ched to a 3x3x1/4 inch angle. Above the five inch outrigger and five inches out from the edge of the outrigger, a 3x3x1/4 angle extends to the ceiling where it is fastened to a continuous steel channel. A 3x3x1/4 angle follows the outside edge of the canopy framing to make for a rigid

The show window floor framing is constructed entirely of 3x3x1/4 inch angles. This frame is supported at the wall on 3x3x1/4 angles attached to the 3-inch channel vertical ties. The front of the show window frame is cantilevered over the bulkhead framing which is also constructed of 3x3x1/4 inih angles.

The entire canopy framing and show window floor framing are made up of all welded construction and were delivered to the site as a single unit. The installation was speedy and because of shop fabrication the measurements were accurate. This enabled the show window metal contractor and carpenter to proceed without further delay.

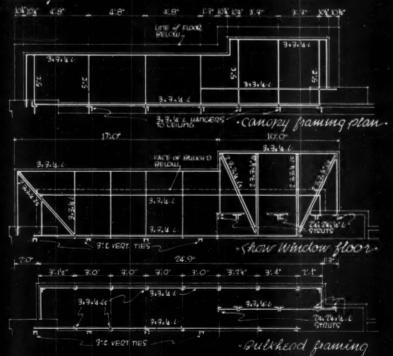
#### AMERICAN BUILDER'S STORE FRONT DETAILS

Designed and detailed by Louis J. Gluskin for American Builder

#### N° G-30 · STEEL FRAMING FOR SHOW WINDOW ·



Botell's . nyc.



# Kinds of Paint Coatings And Their Nature . . .

Chapter 3 in a series of 8 articles on paint in the building business. This one outlines the various general types of coatings for specific surfaces

MANY types and grades of house paint coatings flood the market. They can be classified broadly in three groups of high-grade white or tinted paints whose reliability has been well established. All three groups use linseed or other drying oil for the vehicle, no resin of any kind, and variable proportions of volatile thinner and drier. They differ in the nature of the pigments used, and the Forest Products Laboratory classifies them on this basis. In group L is included pure white-lead in ready-touse form; group TLZ includes readymixed paints made with titanium dioxide, white lead, and zinc oxide; group TZ includes lead-free paints made with titanium dioxide and zinc oxide for use in places where fumes of hydrogen sulfide are present, causing white lead to turn black.

To generations of builders and painters, "paint" has meant just one thing-pure white-lead in oil. Although use of this old-fashioned staple has been widely supplanted by the modern mixed-pigments paints (group TLZ), lead-in-oil is still used and comes as a soft paste containing 89 per cent basic carbonate of white lead, 9 per cent linseed oil, and 2 per cent turpentine or mineral spirits, to be thinned properly by the painter and tinted if desired. In spite of the great advantages of the mixed-pigments paints, white lead is still looked on by many experts as the most allround, foolproof type, and the advice, "Burn it off and paint it with white lead," is still often the answer to many an apparently insoluble paint problem. White lead paint has a reputation of performing well under adverse conditions such as extreme dryness, or a thickly painted surface, or a wood that does not retain paint well. Perhaps the chief advantage of white lead is its high resistance to cracking and scaling. It has an inherent tendency to develop a pattern of checking, but this goes on more or less inconspicuously for a long time, and there is a long period when the white lead surface looks fairly well. The end result of normal white lead disintegration is a fine crumbling of the pigment, which leaves an easy surface over which to repaint. When the new coating is applied, it soaks up the residue of the old paint. The mixed-pigment paints, by contrast, tend to break up in a much coarser pattern, and if they are not repainted strictly in time, may have to be scraped and burned off before repainting can be done successfully.

White lead has many disadvantages, of course. It chalks only moderately and is only moderately resistant to discoloration by dirt and mildew (or in damp places, it may chalk away too rapidly). The big objection to it for use on city houses is that it will quickly take on a gray stain from the sulfur dioxide fumes which come from burning coal, petroleum, or other sources. This grayness will persist for the first three years or so, until the chalking process gets under way sufficiently to clean the surface somewhat.

The titanium pigments came to the fore about 1930 and by 1936 had become the principal ready-made paints.

They were revolutionary because of their high degree of hiding power. Pure titanium oxide has 8.6 times the hiding power of basic carbonate white lead. Also, since the titanium and extender pigments used in a TLZ paint are inert (not reacting with fatty acids to form soaps), they do not fail by checking as does white lead. In a TLZ formulation, the good bond of lead and zinc is combined with the poor binding of titanium to produce a coating in which the breaks caused by weathering are less definite. Checking is thus controlled.

A good TLZ paint will generally begin to chalk in from 9 to 15 months. The rain washing down over the house takes off this chalking with its accumulation of dirt, leaving the house bright in appearance. Naturally the TLZ paints are enormously popular, especially for white jobs. However, the chalking process leads to erosion of the paint, and although erosion is desirable (since without it the paint surface would eventually become too thick, causing cracking and peeling), repainting at the needful time is absolutely essential for the TLZ surface. For a good TLZ 3-coat job, repainting will probably have to be done in about 5-6 years; in 31/2 years for a 2-coat job. Ninety-nine per cent of house paint sold is of the controlled chalking or self-cleaning type. But some buyers will object. for instance, to the stain on a roof



Pittsburgh Plate Glass Company

TZ (LEAD-FREE) PAINT for industrial areas and situations where fumes of hydrogen sulfide are present, These two houses are located in Morgantown, West Virginia, where heavy industrial



fumes are a problem. Both houses were painted at the same time, No. 1 with a first-quality white lead and oil base paint, No. 2 with a lead-free paint. The houses are shown after 14 months of exposure.

caused by chalking which has been washed down from the face of dormer windows; and too much chalking of a tinted paint will of course lead to early fading. So there are available non-chalking types, and one designed especially for tinting purposes which will not chalk as easily as the white TLZ.

The mixed-pigment type TZ, in which the lead is left out, is made for use in areas where there is a heavy concentration of hydrogen sulfide fumes, as in a heavily industrialized area, or a seashore location where decaying seaweed gives off sulfide fumes. Since the lead is omitted, the TZ paint is not so durable as other types. But it will resist dirt and mildew well. It usually remains free from checking and cracking until time for repainting, but may chalk too freely. It is used as white paint only, and if tinted will fade badly and in most tints will lose its resistance to hydrogen sulfide.

Mildew-resistant house paint, designed for use on houses located in areas where there is danger from mildew, is available. Sometimes the manufacturer will market a fungicide additive which will give the regular house paint resistance to attack by mildew spores.

#### Priming Coats

For exterior use, white lead is good for priming as well as finish coatings on wood of any kind. And for the following woods, which retain paint longest and withstand weathering well, a good house paint thinned properly can be used successfully as an undercoat: Western redcedar, other cedars except Eastern redcedar, Southern Cypress, and redwood. However, a modern primer is desirable with woods of all kinds, and is especially necessary with the following: Northern and Western white pine. Sugar pine, commercial white fir. Eastern and Western bemlock. Ponderosa pine, Eastern and Western spruce, Douglas-fir, Western larch, and Southern yellow pine.

Modern priming coats are of two types. There is the titanium-lead type. made of titanium dioxide and white lead in a vehicle of raw and bodied linseed oil. It has controlled penetration-i.e., the oils do not penetrate too deeply into the wood. There is also an aluminum primer, especially useful for priming new surfaces of the following woods: Douglas-fir. Western larch, and Southern yellow pine. However, when aluminum is used, it should be followed by two coats of house paint. Aluminum primer is also recommended by the Forest Products Laboratory for use when the finish coating is to be of the

B NEW YFARS

New Jersey Zinc Company

TITANIUM-LEAD-ZINC HOUSE PAINTS (B), in contrast with old-style house paint (A), are designed to stay cleaner, wear down uniformly without checking. However, unless repainting is

done strictly in time, a TLZ coating at the end of its life will tend to break down in a coarse pattern. If neglected, it may have to be removed before repainting can be done successfully.

TZ type, for resistance to fumes of hydrogen sulfide. This primer is not recommended, however, for use in repainting.

Priming of inside woodwork involves the use of special priming paints made for use on highly absorptive surfaces such as plaster, cement, and wallboard. The pigments are carried in bodied oils or varnishes and seal surfaces well without penetrating into them excessively.

#### Stains

Stains for exterior wood are basically paints very much diluted with linseed oil, a volatile thinner, and sometimes creosote. They are, of course, cheaper than paints and do nor give as good protection against weathering. Good stains contain only pure, finely divided, opaque pigments, free from transparent pigments. Pure iron oxide, chrome, and carbon pigments are considered very satisfactory; white pigments less so. The liquid part of the stain should be at least one-third linseed oil by volume, with two-thirds often recommended. Stains are most suitable for rough surfaces such as shingles or siding placed with the sawed side out.

Stains are also much used for interior work to change the color of the wood. Usually such a stain is one made of pigments combined with oils or varnish together with necessary thinners. On flat-grain Southern yellow pine. Douglas-fir, or other softwoods with wide bands of summerwood, a thin coating of shellac is usually applied as a sealer before using a stain.

#### Roof, Trim, Porches and Decks

Roof paints are largely modifications of house paints and may contain some resinous material in their vehicles. They may also be of the alkyd (a synthetic) resin type.

Trim colors of the highest quality are enamel-like pigmentations of high oil content alkyd resins. Trim colors are designed especially for use on house trim, shutters, trellis and other trim structures. They have durability as good as, or better than house paints. Also, they have the added features of high gloss, good gloss retention, and superior color retention.

Exterior wood steps, floors of open porches, and other outside surfaces that will be subjected to heavy traffic require paints that harden much more rapidly than house paints do. Nothing could be more foolish than to paint a porch floor with the same paint used for the exterior of the house; it would break down at once. Paint for these high-traffic surfaces are made with varnish rather than oil vehicles, and this type of formulation wears down by the scraping of the traffic rather than by the slower action of the weather. This type of paint is used as its own primer.

#### Masonry Paints

There are many protective coatings available for cast concrete, brick, stucco, asbestos-cement siding, unglazed tile, and lightweight aggregate block. These paints can be classed in four groups: highly pigmented oil paint, cement-water paint, synthetic resin-emulsion paint, and paint containing rubber in the vehicle. Under proper but varying conditions they all do a good job of protecting masonry from the inroads of weathering and provide relative degrees of water-proofing.

Oil paint which has been formulated especially for masonry surfaces has good hiding power and provides a durable finish when two coats are applied. Two coats are necessary. When oil paint is used, open-textured surfaces require a preliminary coat of a cement-sand base material. Also, application of oil paint to new masonry should be deferred until the walls have had time to dry.

Cement-water paints are waterdilutable paints in which portland cement is the binder. They are par-

ticularly suitable for the painting of such open-textured surfaces as cinder, concrete and light-weight aggregate block—also for the walls of new structures that normally contain water-soluble alkaline salts. This type of coating comes in attractive colors, has high hiding power, and may be safely applied to damp walls.

The resin-emulsion paints which



Sherwin-William

MILDEW-RESISTANT paint is available for houses in areas with high humidities. The house shown here is a case in point, it is located in a mildew danger zone and was painted properly with a mildew-resistant paint—almost, that is. When the painter came to the porch he had run short of the special paint, so he finished up the porch using a regular gloss white house paint. The difference in mildew effect between porch and siding is obvious.

are suitable for masonry are waterthinned. They bridge the gap between water- and oil-base paints. They have dry film properties similar to those of a flat oil paint and contain the same pigments used in oil paints, but are composed of water-thinned materials. forming an oil-in-water emulsion (the oil molecule is inside the water molecule, the water evaporating and leaving an oil film). A typical resinemulsion paint is easily applied by brush or spray and dries within a few hours to a smooth, opaque, flat finish. With the exception of magnesite stucco, most porous masonry-including asbestos-cement siding which has not previously received a coat of waterproofing compound-may be finished with one of the resin-emulsion paints.

Of the rubber-base paints which may be used successfully on masonry, there are two varieties. The rubber-solution type is one in which the synthetic rubber is incorporated in a vehicle of treated drying oils, aromatic hydrocarbons, and coal tar thinners, and pigmented with opaque, weather-resistant pigments. The rubber-emulsion type treats the synthetic rubber resin with an emulsifying

agent, so that the paste paints are reducible with water. Considered especially appropriate for painting asbestos-cement siding and shingles, these coatings also have the ability to seal in stains on old masonry. They also serve as protective primers under finishing coats of resin-emulsion or oil-base paints. They may be applied by brush or spray to dry or slightly damp walls.

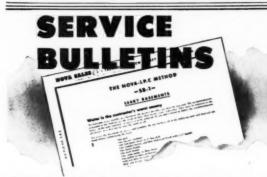
#### Metal Protective Paints

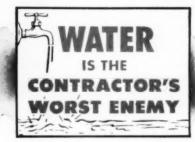
These are metal primers designed to form a good adhesive bond between the metal and the top coat. They are also formulated to retard, inhibit, and prevent rust corrosion. In composition and quality, they vary-from the general utility paint, pigmented with iron oxide and extender pigments dispersed in aspar varnish vehicle, to the highly durable zinc yellow primers in alkyd resin vehicles. Zinc vellow primers do an outstanding job. However, where there is not a thorough surface preparation including the removal of all rust, it is better to use a red lead-linseed oil type of primer.

Metal protective top coats are usually oil-type paints or alkyd resin top-quality exterior enamels. They are applied over the primer in one or two coats to give maximum durability. Aluminum paints are frequently used over primers, and are composed of aluminum flake dispersed in oleoresinous or alkyd varnishes. Zinc dust paints, in either oil or alkyd resin vehicles, may be used both as top coat and primer. Their outstanding characteristic is good adhesion to galvanized iron without metal pre-treatment.

#### Paints for Interior Work

Oil-type flat wall paints are made with an oil-varnish vehicle and prime pigments that have high hiding power. In addition, they contain extender pigments to build up the pigment volume so that a flat sheen is provided by the dry film. On these classes of paint-a word of caution. Flat wall paint business runs into large volume and is competitive. Most manufacturers market a "first line" quality flat wall paint under their own name. To meet acutely competitive conditions some manufacturers also market a "second line" quality product at a lower price. These products contain less oil in the vehicle and more lowcost resinous materials, such as limed rosin. Made with less hiding power per gallon and cheaper extender pigments, they are likely to become more quickly embrittled with age, lose their adhesion faster and peel sooner. In flat wall paints particularly, as in all paints generally, you get just what





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- (SB-9) Relieving joints

- (SB-10) Exterior masonry coatings
- (SB-11) Novacrete Masonry Paint
- (SB-12) Approximate quantities of materials required per 100 Sq. Ft. of various thickness slabs
- (SB-13) Portland Cement, plaster, stucco, floor topping and mortar proportions
- (SB-14) How to find areas and capacities
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you pay for. The most economical finish in the long run is the one with the highest initial cost. To use others

is false economy.

Oil-type flat wall paints, as well as oil-type house paints, are marketed in both ready-mixed and paste form, and some new types for interior use are practically odorless. The paste product is usually sold to painters who then add oil and thinners to the paste. They end up with a ready-to-apply product which is comparable to the ready-mixed paint in composition. By this procedure certain economies to the painter are supposedly achieved.

The first-line quality flat wall paints are good but not necessarily the best that can be made. Certain other classes of finishes are superior to them and command a premium price. Such paints are the so-called eggshell finishes, used widely in quality jobs on woodwork and based on nonyellowing alkyd resin vehicles (the vehicle of the ordinary flat wall paint is oleoresinous). The eggshell surface reflects light diffusively. The non-yellowing characteristics, the superior tint retention, and the better washability of the alkyd resin type of flats bring the premium price. (Alkyd resins are made by combining soybean oil, glycerine (or penta) and phthalic anhydride.)

Semi-gloss and gloss finish paints are also used for wood trim in general and for walls and ceilings where good washability is important and moderately or highly glossy surfaces are customary. These too, are enamel types, made with a varnish vehicle, normally applied in two coats after the wood has been primed. Highly glossy finishes accentuate any defects or irregularities in the wood surface unless the wood has been carefully smoothed and finished.

One-coat flats in today's market are flat wall paints with higher than normal prime pigment content. They also have certain vehicle modifications to make the paint give optimum one-coat performance. The performance spread between the so-called one-coat flats and many of the firstline quality flat paints is more narrow today than it was a year or two ago. In many instances it has vanished completely.

White wash is a mixture of lime and water, and in the same class is calcimine, which is a mixture of glue and whiting. The water-mixed paints became an important class of coatings with the development of casein paints. These coatings were based on lithopone as the hiding pigment and casein in a form convertible to a true binder. Easy to apply, they had high hiding power. In paint development they led to the emergence of a whole



Ewing Gallows

RESIN-EMULSION paints may be used on most porous masonry surfaces. (An "emulsion" is not a "solution" but a liquid dispersion in which the particles of one substance are suspended in those of another. For instance, in an oil-in-water emulsion the oil molecule is inside the water molecule; in a water-in-oil emulsion, the oil molecule is outside the water molecule, Both types of emulsion produce a film, although the first is generally preferable.) The three other main types of masonry paints include high pigmented oil paints, cement-water paint, and paint containing rubber in the vehicle.



Sherwin-Williams

FIRE-RETARDANT PAINTS for interior use are a new development with some manufacturers. They are applied between the primer and the finish coat, and are made to withstand great heat without bursting into flame. Instead, as the photograph shows, they swell up into a cinderlike blister which acts to push the flame away from the wood surface. So far, such paint has had a limited use, chiefly in connection with shipboard finishes.

new class of coatings—the resin-oil emulsion paints, in which resins and oils were enulsified and added to casein. The greater insolubility of the resins and oils combined in emulsions resulted in greater washability.

The market for these oleoresinous flat wall paints grew by leaps and bounds during the war years, and large-volume emulsion paint business was built on these highly pigmented finishes. The vehicle of these paints could be oleoresinous casein or other protein binder combinations using various emulsifying agents, together with anti-foaming agents and preservatives. The latter were necessary to prevent the putrefaction of the pro-

tein portion of the binder. Tons of this material were spread over wallpaper and other wall surfaces, dried quickly, and allowed home owners or painters to do a fast decorating job. These paints were marketed as pastes, which the buyer thinned to working consistency with water.

There were, however, notable disadvantages to these oleoresinous emulsion paints. Between the products of various manufacturers there was wide variation in performance characteristics-particularly in washability. The best of them could not compare in washability with any firstline oil-type flat wall paint. Also, the sheen was nearly always a dead flat. So there was a real need for a paint with all the ease of application of oleoresinous emulsion paints, but with the washability of oil flats and an alkali resistance superior to such flats and semi-gloss finishes. At the same time, such a finish needed to be as free from "ghosting" (porous spots of lighter color than rest of wall) as the dead flat emulsion paints, but provide the sheen of satins and eggshells. The stage was thus ready for the appearance of the rubber-base (latex) paints for wall finishes.

#### Rubber-Base Paints

Meanwhile there had come on the market various flat wall paints based on cyclicized rubber (which is different from the chlorinated natural rubber used in paints for marking concrete floors or swimming pools). These were paints which had low vehicle solids dissolved in organic solvents. They had outstandingly good washability and alkali resistance far in excess of the ordinary oil-type flat wall paints. They could be applied directly over porous surfaces and unneutralized plaster. From these, paint chemistry took the next step. Into the line of development came paints which have rubber latex as the main portion of their vehicle.

Marketed in ever-increasing volume for interior work are the satinsheen type of rubber-base wall paints which dry quickly to a film that has many characteristics of rubber itself. Most of the particles in the paint are too large to strike into the surface, but coalesce into a solid film, even over porous surfaces. Pioneered on the market in 1949 these latex paints were developed with the needs of the amateur painter and decorator in mind and are very easy to use. They are odorless and contain neither drying oils, turpentine nor similar paint thinner. The thinner in the can is water.

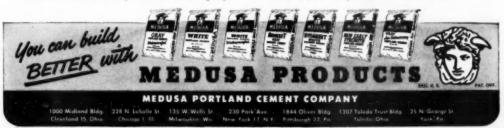
The latex in some of these new paints is a natural rubber latex. In



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others, it is a synthetic rubber latex. Different latices are available and are selected by the chemist to produce certain performance characteristics. From these latex materials as the major portion of emulsion paint vehicles, paint chemists have developed lines of emulsion paints which have the fast drying of the oleoresinous paints, together with the ability to be applied over surfaces of varying porosity without variation in dry film appearance and sheen. Being rubber-based, they have an alkali resistance far superior to the varnish or alkyd resin-base flat wall paints generally described as oil-type flats. This enables them to be applied directly to unneutralized plaster without the use of special washes and intermediary primers and sealers, and without the danger of the alkaliburning of oil paints. Because of their high molecular weight vehicles, they can be applied over porous surfaces or surfaces with varying porosity and still come up with ghost-free uniform sheen. In addition, latex emulsion paints furnish the excellent washability which the old oleoresinous emulsion paints lacked. Moreover, they offer a high eggshell or satin luster which was heretofore unobtainable in emulsion paints, with any satisfactory degree of uniformity and reproducibility. They are marketed in either paste or ready-mixed

However, rubber-base paints are not to be thought of as the final solution to all problems related to flat wall or interior decorating finishes. They have some disadvantages. For instance, a latex paint can't be applied directly to new woodwork nor can it be used on metal without first priming the metal to prevent rusting from the water-thinner of the paint. While it has more sheen than an oilbase paint, the effect of a rubberhase finish is not so rich or handsome. When applied at low temperature (50 degrees) and high humidity, the paint may tend to effloresce-a deposit of sodium sulphate crystals may appear over the wall in patches, giving it a smoky appearance. The adhesion of a latex coating is not as good as an oil or synthetic resin enamel type, and the paint can come off in patches. Since latex paint will rust metal, care must be taken with nail heads. If stored in cold temperatures, the paint may freeze and in thawing out lose some of its properties. No adequate body of experience is yet available on what happens when latex coatings are painted over with other types of wall finish,

Some paint manufacturers have preferred not to come on the market with rubber latex emulsion paints. Instead, they have directed their efforts toward organic solvent-thinned instead of water-thinned paint products designed to do virtually all that latex paints will do, and still retain the adhesion and adhesion retention characteristics of alkyd and oleoresinous paint systems. The latest synthetic resinous finishes to be launched on the market at roughly the sheen level of the latex paints offer comparable washability and uniformity of appearance plus outstanding exterior durability, but with less chemical resistance than the latex paints offer.

#### Varnishes

Varnish is not just varnish—to be put on everywhere or anywhere. The so-called all-purpose varnishes are at best compromises. Their performance on any given surface can always be excelled by the use of a varnish designed especially for that job.

A spar varnish is one of high oil and low resin content. It is designed to be flexible, water resistant, and weather resistant. Its particular function is to give maximum protection to surfaces subject to exterior exposure on which a clear coating is wanted. A spar varnish is the wrong type of finish to use indoors. On interior woodwork it will be too soft and on warm humid days may get tacky. On floors, it is not tough enough to give satisfactory wear. On furniture, it would soften under body

An interior varnish has less oil and more resin content than a spar. It is designed for woodwork, but is not hard and tough enough for floors or furniture. If used outside, it would be less durable than spar.

A floor varnish is still higher in resin content than interior varnishes. It contains enough oil to give it sufficient flexibility so that it can stand the bumping of hard hitting heels and furniture moving. Its higher resin content gives it the extra toughness needed to withstand the wear and abrasion from heavy foot traffic.

A rubbing varnish, a bar varnish and furniture varnishes are of still higher resin content. They have a high gloss which may be rubbed with punice and oil to any desired lower lustre. If they are to be used on table tops or bars, they are made with the type of resins which are alcohol resistant.

Flat varnishes are available in any of the above types. The difference is that they contain stearates or silicates, or other ingredients which cause them to dry to a lower than normal gloss. (Continued from page 68)

Shellac varnishes are solutions of shellac in alcohol and are classified according to composition and color. The solvent generally used in their manufacture is denatured alcohol. They produce a pleasing finish, with a dull lustre, and can be applied easily and dry rapidly. However, they turn white from contact with water and are easily injured.

Varnishes are like any other paint product. You get what you pay for. The best and most economical in the long run is the varnish with higher initial cost.

Certain high-quality varnishes on the market are actually solutions of oil-modified glyceryl phthalate resins. These are clear alkyd resins. As such, they may—for the sake of simplicity—be thought of as varnishes of a special type. Their major use however, is not as varnish in the usual sense, but as vehicles for enamel.

Enamels are designed to dry to a high gloss. Where a semi-gloss enamel is desired the pigment volume is built up with the extender type of pigments to a point where the desired degree of gloss is obtained. The semi-glosses are neither flat nor shiny.

The main difference between an interior enamel and an exterior enamel is to be found in the vehicle. Remembering that an enamel is essentially a pigmented varnish, it will be plainly understood that it would be entirely undesirable to use an interior enamel for exterior use because satisfactory performance could not be expected.

There are important differences, other than differences in the vehicle, between interior and exterior enamels. The pigmentation of exterior enamels is confined to the use of those pigments which give optimum exterior durability, light-fastness, and fade resistance. These features are much less important in interior enamels which are not subject to intense ultraviolet rays. There are certain pigments which give very delicate and beautiful clear-toned finishes. For interior use, they are perfectly satisfactory, but would fail miserably in an exterior enamel.

Within the range of interior enamels, vehicle choice is very important. The best architectural white enamels are made from titanium dioxide pigments dispersed in soybean or castor oil modified glycerol or pentaerythritol phthalate resins, because such vehicles give the maximum non-yellowing of the paint film with age. Such whites are usually blued whites, because—to the human eye—the whitest-appearing white is a blue tint. An absolute white appears to the eye as having a yellow cast. Refrigerators and such other appliances are finished in blued-whites.

There are several types of special interior enamels designed for specific functions beyond the usual interior enamel performance. Among these are rubber-base enamels, used mostly on concrete floors where an alkali condition may be present. Vinyl resin-based enamels are specialized finishes utilized only where their outstanding chemical resistance can be used advantageously. Such applications are more frequently found in industry than in the home.

Floor enamels, designed to have excellent wear and abrasion resistance, are included among enamels because of their high gloss. They are, however, somewhat related to paints with respect to their pigmentation because—to increase their wear resistance—certain low oil absorption extender pigments are used in considerable volume, in addition to the prime pigments. The vehicles for floor paints are usually oleoresinous varnishes or alkyd resins. The particular vehicle used is selected for its tough, hard resistance to continued abuse.

#### Luminosity

Various luminous coatings are available and their use in home building is chiefly in connection with interior (Continued on page 70)

WET CELLARS START NATION WIDE CONGRESSIONAL INVESTIGATION OF G.I. HOMES...



Water held the highspot throughout the hearings. Seepage in cellars and through foundation walls;

WET CELLARS ARE BUILDERS'

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SCRUB TESTS with a laboratory machine demonstrate the new standard of washability set by rubber-base water-mixed paints for wall finishes. First panel to right is casein paint after 30 oscillations of one-pound weighted brush. Second example is a resin-oil emulsion coating after 5,000 oscillations, Third, a rubber-base product after 10,000 oscillations. These tests were made on paints aged 30 days, using 0.25 per cent soap solution.

New Jersey Zinc Company photos

detail such as marking the edge of a door, light switch, edge of a window sill, or edges of furniture which would be a hazard in the dark. These paints glow for about six to eight hours after they have been "charged" by natural or artifical light, and are easily applied, in at least two coats. New surfaces should be primed and already painted ones should be given an enamel undercoat to seal off any lead in the former paint.

#### Waterproofing

The common problem of damp basements has naturally brought into the market a great variety of paint products and others which claim to have "waterproofing" qualities when applied to masonry walls. In approaching this whole problem of waterproof coatings it must be clearly understood that no such coating is of itself a cure-all. Improper drainage of the site, poor workmanship, and defective construction in the building itself can nullify any type of waterproofing.

The so-called waterproof coatings include the four types of masonry paints, described above; colorless surface waterproofings. some of which have a silicone base, some containing chlorinated rubber in solution with benzol or naphtha, and still others being a water emulsion of waxes: cementitious coatings and proprietary materials (portland cement and sand, iron dust and sal ammonica, etc.); hot bituminous coatings (asphalt, coal tar, asphalt roof coating, asphalt emulsion, bituminous plastic cement) used on outside walls below grade and also often used on the inside faces of masonry walls.

Tests by the National Bureau of Standards have established that two coats of cement-water paint applied to the exposed faces of masonry walls are highly effective as waterproofing, The coats were found to be less permeable when applied with a stiff brush, and reached a maximum durability when fine sand was added to the paint used for the first coat. Cement-water coatings applied to dry, highly-absorptive walls were more permeable than those applied to damp walls in the Bureau's tests; and coatings of thin consistency were more permeable than those of normal consistency. Mixing the paint with water repellent, hygroscopic salts, diatomaceous silica, or an opaque pigment waterproofing.

The Bureau's tests showed that coatings on masonry of oil-base did not increase its effectiveness as a paints and of emulsified resin paints were permeable and much less effective as waterproofings than the cement-water paints. The most effective and durable of the pigmented waterproofings tested were those containing portland or magnesium oxychloride cement.

The colorless waterproofings were generally found to be ineffective, and permeable walls treated with them leaked excessively.

Investigating the waterproofing properties of bituminous coatings applied to the inside faces of walls, the Bureau found these coatings to be of little benefit on walls that leaked badly. Blisters filled with water developed in the coatings, and the rate of leakage from blisters that had col-

lapsed was high. Brush coatings of portland cement and sand leaked slightly but were more effective for waterproofing inside walls than were bituminous coatings. Trowel coatings of portland cement mortars, prepared with or without the admixture of iron powder and sal ammoniac, were found to be very resistant to water penetration.

Recommended as a method of waterproofing brick walls without changing their appearance is the repointing of the face joints with mortar. The Bureau found a portland cement grout applied to the joints of brick walls to be an excellent method of waterproofing. The grout may contain one part of cement to about 1½ parts of fine sand and is applied to the dampened joints with a stiff brush.

In the May Issue

#### PAINTING EXTERIOR SURFACES

When to paint
Preparing surfaces
How woods affect paint
Selecting the right system
Estimating

and

many other aspects of successful house painting.

#### Wallpapers and Fabric Wall Coverings

Wallpaper styling has broken away from the stereotyped floral and geometric patterns of yesterday. The trend is toward papers designed freely to express the character of contemporary architecture and modern home furnishings. This greatly widened choice of papers to suit modern taste is bringing about a revival in the use of wallpaper for every room in the house.

Part of this development is the appearance of papers which have high washability, great decorative value, and perform about as effectively as a good washable paint. One such type is a plastic paper five times stronger than ordinary wallpaper and guaranteed to retain its original color through at least 100 washings. Packaged in a double roll box, it comes pre-trimmed, both sides, ready to hang.

Another type, considerably more expensive, bridges over toward the fabric wall coverings and is classed as "thermoplastic wall covering." It

(Continued on page 72)



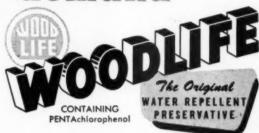


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WASHABLE WALLPAPERS, produced in attractive designs suitable for modern decorative needs, are available.

is a composite wall covering made by fusing colors, paper and plastic resins, and does not peel or chip. It is described as a stainproof wall and ceiling covering which looks like new even after 25,000 scrubbings with soap and water. It resists stains of all kinds, is fade-resistant, resists mold, mildew, and vermin, is fire-resistant, odorless, unaffected by excessive heat or extreme cold, and resists steam, water, and salt water. It comes in roll form and is applied like wallpaper, although a special adhesive is used for better adhesion at tight butt joints and at corners. Each unit is 50 feet long and two feet wide, the equivalent of about three rolls of regular wallpaper.

Included in the washable wall covering category are the fabric wall materials. These are decorative surface materials produced by the application of coatings of paint, plastic and lacquer to a fabric base, usually canvas. The surface is generally hardened by baking processes but remains flexible and is applied like wallpaper. Highly washable, these materials have some structural reinforcement value on both plaster and dry-wall construction. They are especially popular for bathrooms and kitchens because of the washability factor, but are being much used also for interior wall finishing throughout in houses whose partitions are in plasterboard or plywood panels. There are undecorated fabric materials which provide a base for



These are two patterns in a line of superwashable plastic wallpapers.

Trimz Company, Inc.

calcimine, water or oil paints, or as a lining for wallpaper. Widths vary from 27 to 48 inches, and lengths from 9 to 331/4 feet.

#### How to Apply

All surfaces should be thoroughly dry and free from cracks, holes, blisters, rough spots, patches or edges. All such defects must be cut, sandpapered, scraped or properly filled with spackle or plaster of paris. Examine rolls before cutting to required lengths. Brush the strips thoroughly with a good grade of strained flour paste of comparatively thin consistency. Fold strips evenly with pattern side down and trim selvage on the zinc strip of working table with a true straightedge and sharp paper hanger's knife or trimmer. Material without selvage should be similarly trimmed about 1/2-inch on each side.

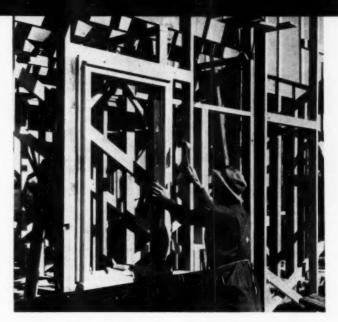
Immediately after pasting, hang strips plumb with pattern matched. Brush with a stiff short bristle brush, taking care not to stretch the material.

Use only butt seams, and make these by overlapping the preceding strip slightly and sliding off to butt. Seal the seam in position using a broad-knife only and with only minimum pressure. Never use a hard roller.

To clean a surface covered with a washable or fabric material—use a luke-warm solution of mild, neutral soap, applied with clean sponges or soft cloth.

It isn't what you know that is so important—it's knowing WHERE to go to get the information you need to do a job or solve a problem.

Builders and Dealers keep their AMERICAN BUILDER CATALOG-DIRECTORY handy so they can refer to it frequently. Turn to pages D-1 to D-104 in back of book.



RESEARCH in the manufacture of different types of glass as well as research and development in wood, metals and some plastics has made possible great advances in window construction in the past decade. The double-pane window, the "window wall," the various combination units, the clerestory, jalousie, pivoted, and others are all found in modern design.

### Metal Casements

The Aluminum Window Manufacturers Association and the Metal Window Institute have set up specifications for the trade pertaining to aluminum and steel windows, respectively. Steel windows are bonderized and painted with special primer, while aluminum windows are cleaned and coated with clear lacquer by the manufacturer and do not require painting.

Metal windows are made of hot rolled steel or extruded aluminum, mitred at corners, with joints welded. Design features are very similar, most manufacturers making an "economy" line as well as a regular



STEEL CASEMENTS are available in a wide range of sizes and styles

line. Some metal casements are equipped with crank openers, and some have special hinges so that both sides of the casement may be cleaned from the inside.

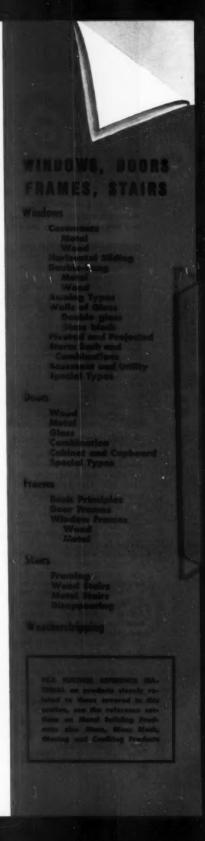
Light in weight, metal casements are surprisingly strong, durable, and easy to work with. However, care should be taken in installation to avoid rough handling which might bend slender frames or sash out of shape. Following manufacturer's instructions for installation should result in snug-fitting windows with all screens and storm sash fitting properly and hardware functioning easily.

### Wood Casements

The out-swinging type of wood casement is most popular with builders and home owners because apparently it can be more easily made weather-tight. Some types have storm sash which open with the window proper, and others have extra deep rabbets to accommodate the readymade double pane units in common use. As with metal casements, sash are often hinged with offset butts to allow cleaning of both sides from the



ALUMINUM CASEMENTS and doublehung units do not require painting



**APRIL 1952** 



WOOD CASEMENTS are easy to install and to make weather-tight. Double-paned glass may be used, and screens and storm sash may be constructed as a part of the sash

inside. Screen and storm sash, when available with the unit, are hung on the inside and do not interfere with its operation.

Complete wood window units are easy to install and save the contractor time and money, but care should be taken in installation. These windows need proper openings so that frames set square and plumb. Bowing of head, jambs, and sills should be avoided. Frame and sash should be painted with two coats immediately after installation (or before) but no paint should be allowed on any of the metal weather stripping. Clean up any excess paint or plaster to restore original smooth operation to units which may tend to stick.

# Horizontal Sliding Windows

The horizontal sliding window came into being when someone turned a double-hung window on its side. Since 1940, the spring-type weather stripping has made possible weather-tight operation. This type of window permits larger glass areas than most other types of movable window, and has increased in popularity because of that fact.

Made of wood, steel, or aluminum, horizontal sliding windows are adaptable to almost any type of architecture or construction, as sizes conform to modular standards for masonry openings, and multiple openings are formed by hooking up single units with side casings. Screens and storm ash are installed on the outside. Double-pane construction is also used.

### Double-Hung Windows

The double-hung window is probably the most common in American architecture, and modern improvements in weights, balances, and weather stripping have kept these windows competitive with most other types in modern construction.

# Metal Double-Hung

Metal double-hung windows have

the same characteristics of other metal windows; they are weatherstripped at the factory, easy to install, easy to care for and operate. Most are made in box-type sections, with glazing done on the job. Some provide for double glazing,

Bonderized steel units require painting, but aluminum does not. However, care must be taken with aluminum to avoid scratches and to avoid stains from plaster droppings which may get onto the sash. A good trick is to coat aluminum sash with petroleum jelly right after it is put in place.

Manufacturers offer a great range of opening sizes, installation hardware and special features. Even though these are fundamentally similar, their slight variations make it imperative to decide on brand and sizes to be used before construction is begun on outside walls, and to follow closely manufacturers' instructions as to installation.

### Wood Double-Hung

Modern methods which produce factory-assembled complete units have resulted in substantial savings in building costs as against the oldfashioned windows built on the site. Weather strip is placed in the assembled frame, and balances are hooked up ready to operate. Weights and pulleys are now used in only the "economy" types, and complete units are delivered to the building site ready for installation.

The National Woodwork Manufacturers Association has established standards and specifications for the trade, and opening sizes are set up to conform to modular principles. Weather stripping has advanced to the point where some manufacturers are using tension-type weather strip to hold the window in any position and eliminate the need for balances of any kind. This also allows for easy removal of the window for cleaning and painting without removing any interior frame stops.

Ponderosa pine modular windows have all the natural insulating advantages of wood, hold paint or other finishes well, and can be treated with preservatives at the factory to prevent decay or insect attack. The removable feature of those using spring weather stripping operates by pushing the sash to one side against spring pressure so that the other side is free and pulls inward. Paint-stuck windows may be freed in the same manner. Such tension-types may also be turned on their side to use as economical sliding windows instead of using regular sliding windows which require more expensive and elaborate tracks to run on.

### Awning Types

The awning-type of window, wood or metal, is basically a casement window turned on its side with the hinge at the top. Wood awning windows usually have sash or vents hung from the top and hinged by brackets to the jamb. The bottom rail of one unit interlocks with the top rail of the one below. The sash are usually controlled by worm or gear mechanisms, and good ventilation is possible, as most units may be opened to 90 degrees. In many types, units may be left open without danger of rain driving in.

HORIZONTAL SLIDING windows permit large glass areas. Weather stripping minimizes heat loss. Wood or metal sash may be used. Double glass is possible



Most awning units, either wood or metal, are delivered to the site as complete packages, ready for installation, Installation is the same in most cases as for other types of window units, the same precaution for metal mits being necessary as for metal casement or double-hung types. Weather stripping and interior storm sash and screens make them feasible for use in any climate.

Some units have motor-driven operators. Most of them permit the bottom vent to be open a crack without the others being open at all, and allow the top unit to drop inside for easy cleaning of the remainder from inside the room. Both wood and metal are available in a complete range of sizes.

# Walls of Glass

The modern trend is definitely toward the use of larger glass areas in home construction. Picture windows have grown to be whole walls of glass, and two of the nation's largest glass manufacturers are making available a double-pane unit which reduces heat loss or gain from windows and makes the glass wall truly practical.

Glass block is frequently used with picture windows, a common application being a plate glass or doublepane picture window flanked on each side with sections of glass block into which is built a ventilating louvre unit

Plate glass is frequently used where problems of insulation and heat loss are not acute, but the double-pane unit is becoming ever more popular in the "window wall" type of construction. This double pane typically consists of two pieces of good quality plate glass mounted in rubber with an air space of ¼ inch or so between. This provides insulation and reduces the condensation which usually occurs on glass in cold climates. Triple glass units are also available, when heavy insulation is desired.

heavy insulation is desired. Met by making the glass area of WOOD DOUBLE-HUNG sash have high insulating value, and modern weather strips eliminate sash balances in some lines. Spring weather strips permit easy removal of sash for cleaning or painting





DOUBLE-HUNG aluminum windows are weather-stripped at the factory and do not require painting. Care should be taken to prevent scratching or staining during construction



AWNING WINDOWS supplement architectural treatment where horizontal lines are wanted. Good ventilation is possible; wood and metal units are supplied in a variety of sizes

Most sash manufacturers provide for the use of this glass with their units, and installation of this type is no more complicated than for ordinary glass. In addition, double-pane construction usually eliminates the need for storm sash.

The problem of securing ventilation while at the same time having a large expanse of glass is usually met by making the glass area of smaller lights or units, with some of them permanently fixed and others opening, as awning or casement types. In some cases a group of double-hung windows located immediately adjacent to each other will produce the same effect. For large panes of glass, many builders have found the horizontal sliding construction most suitable where the "glass wall" effect is desired.

# Pivoted and Projected Types

Included in this category are awning windows with a hopper vent at the bottom which swings inward instead of outward; the heavy projected units; and the semi-protective pivoted types. With pivoted vents, the unit swings horizontally at the center instead of at the top, as in awning types, so that the vent projects outward and also inward at the same time. This allows windows to be kept open during rains; the projecting portion keeps the rain out, while the inner portion acts as a baffle to deflect air towards the ceiling. Units are available in wood, steel, solid



WINDOW WALLS using a combination of hinged sash and glass set in stops may be purchased as a stock unit in various sizes. Double pane construction reduces heat loss

bronze, or aluminum. They come with standard hardware and may be fitted with screens and in some cases with storm sash, particularly on the opening-out vents.

### Combination Units

Combination screen and storm sash are available from a host of manufacturers, and are made in wood, aluminum, stainless steel, and other materials. Screens are furnished either full length or in half-length sections, wired with copper or aluminum cloth. Storm sash usually comes in two sections, making the combination unit a three-piece affair.

One manufacturer lists 20 stock sizes, and others make many more, as well as fabricating such units to order to fit existing windows of almost any structure. Metal units are sometimes built with a wood subframe, with steel or aluminum parts carefully finished and joined to the subframe.

Some manufacturers are producing



GLASS BLOCKS provide privacy. They may be used alone or combined with picture windows. Ventilating louvres are available to be used with glass block

what amounts to triple-hung units, which have a standard double-hung window plus a double-hung storm sash plus a one-half screen unit—all built into the same prefabricated frame, complete with weather striping and balances, or pressure weather stripping for easy removal and cleaning of the sections. Ready for installation at time of construction, these units simplify matters a great deal for the builder.

Storm sash for casement and the awning-type windows, as well as screens, are devised for handling and installation on the inside of the window. Rubber or other weather seal is usually provided around the edges, and storm sash frequently comes with built-in ventilation lights so that winter ventilation may be controlled as desired.

### Basement and Utility Windows

Wood or metal basement and utility window units, set up and ready to install, come with or without storm sash and screen, and are normally provided with frames, hardware and accessories in one package from the manufacturer. Frames are grooved to hold mortar, and wood units are chemically treated to resist rot and insects. Screen and storm sash are fitted to fasten from the inside.

One type of basement window is fitted with reversible sash which may be hung to open either at top or bottom. Removable sash may be reversed in a matter of seconds. Utility window units are made to fit modular principles, come already glazed, with top vent opening inward; an outer screen across this opening is built in to keep out insects and vermin. All units are easy to operate, lock se-

curely, and have few moving parts to get out of order. They are ideal for barns, farm and storage buildings

### Special Types

There are many and varied special types of windows available both as standard units and as custom-made installations. Among them are the electrically-operated picture windows which are hung from a metal screen which rolls up at the top. As the screen unrolls, the window drops down into a slot and the screen covers the opening. These motor-driven units come complete in a package, ready for installation.

Another special type is a modification of the simple utility window, and is a bottom-hinged panel opening inward with screening across the opening. The entire unit is in a metal frame ready for installation in a glass block wall. Modular units are available.

Louvred window units for use with picture windows can be obtained in wood or metal. These are strictly ventilating devices, can be closed and made weather-tight. Other types of jalousie windows, with horizontal strips of glass, are rated as weather-tight and provide controlled ventilation as well. Glass jalousies are frequently installed in door panels.

Another manufacturer produces a louvre-type shade screening of metal with the louvres set close enough to keep out pests and insects but far enough apart to provide ventilation and shade. This also affords privacy, as you can see out but people on the outside cannot see in.

Tension screens are another recent development which housewives have found convenient, especially

(Continued on page 80)



STEPS in the installation of a factorybuilt unit. This window, complete with screen and storm sash, may be quickly installed in one operation on the job

This "silent salesman"
SURE SELLS HOUSES





Quality Approved

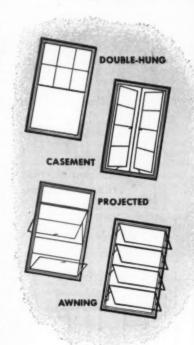
# ALUKIKUKA

You don't need a lot of fast sales talk when your houses have windows that carry the "Quality-Approved" seal.

The attractive, smart appearance of aluminum windows brings prospects in. The "Quality-Approved" seal tells them that your house is as good as it looks. It's the buyer's assurance of lifetime trouble-free window service—for "Quality-Approved" windows never rot, rust, warp; always open and close freely; never need paint.

The "Quality-Approved" seal is your assurance of windows that meet the highest quality standards of design, construction, materials and low air infiltration. The windows are easy to handle and install; they save you money on installation; help you sell your houses faster and free you from the trouble and expense of complaints and call-backs.

You can get early delivery of standard sizes in any style—double-hung, casement, projected, awning. For detailed information, see any "Quality-Approved" manufacturer, consult Sweet's Builder's File (Section 4c ALU) or write Dept. AB-4.



Aluminum Window Manufacturers Association

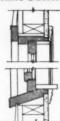
74 Trinity Place, New York 6, N. Y.

# BEE GEE Modern All-Wood Windows are finding most of the second se

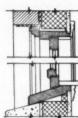
BEE GEE Modern All-Wood Windows are finding more and more favor with customers everywhere. They're tight and airy, ... with the styling particular people want. The modern BEE GEE Window is a complete unit consisting of FRAME, pre-fit glazed SASH with the glass bedded in putty, a bronze SCREEN and all HARDWARE installed at the factory. The more than 42 styles and sizes are shipped ready to set in the wall.

### -2:18: For brick or stone veneer 42.24 studwall or solid masonry wall construction 128 80 8 188 3 ml 11% 6'-0% Brick Opg. 3'.3% 4-696 \$-1'.10%' 6'-0" 5'-9% Stud Opg. 3'.3" 3 Sash Size -3'-0% 4'-2% 3.4% 228 23B 3.11% 4:3% 338 4.0.4 4.3% 438 80 840 \*\* WIN Brick Opg 4'-10%" 10% -3'-5%" 6'-4% Stud Opg. 6'-4"-4.10% 4.74 628 638 6.0%

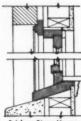
## FRAME DETAILS



Stud Wall Type



Salid Massacra Toron

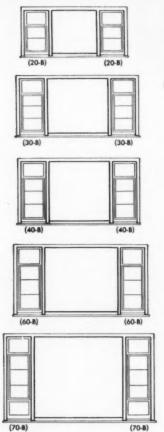


Brick or Stone Veneer with Plaster Reveal\*

\*Plaster Reveal available also in Stud Wall and Solid Masonry Frames.

# CLEAN THE OUTSIDE FROM THE INSIDE

Housewives immediately sense the convenience of this famous Bee Gee feature. Bee Gee Windows meet the needs of every home, fit every budget...a source of lasting pride and satisfaction. At your request the 20 sizes of Bee Gee Picture Windows can be shipped completely glazed with either Thermopane or Twindow.





# HOW TO ORDER BEE GEE WINDOWS

- 1. State the quantity needed, the unit number, and the type of frame construction desired, such as "Studwall, Salid Masonry, or Brick Veneer."
- 2. It narrow jambs are needed for Plaster Reveal, just state "Plaster Reveal" with your frame construction.
- 3. Standard jambs are 1½ "x 5½". Narrow jambs down to 3½" wide are available for Plaster Reveal on inside, or where wall construction necessitates less than 5½" wide, without extra cost.
- Clear glass always shipped unless "Obscure" is specified.

- 5. When marble stools of more than %" thickness are to be used, it is only necessary to specify "For Marble Stools" and a frame for this type of stool will be furnished at no extra cost.
- 6. Frames for bay windows or corner windows with extended sills for mitering will be furnished if requirements are specified on order, at a slightly higher price.
- 7. Frames for all sizes are available for Studwall, Brick, or Stane Veneer, and for Solid Masonry Walls.

SOLD BY YOUR LUMBER DEALER Write today for the complete BEE-GEE Window details and Catalog.

BROWN-GRAVES CO., Dept. AB-103 Akren 1, Ohio

NAME

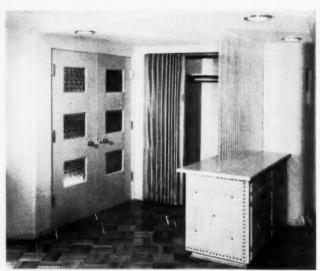
ADDRESS

CITY

STATE

BROWN-GRAVES CO.

Akron I, Ohio



THIS MODERN front entrance uses architectural glass in the front doors,  $\alpha$  folding door for the guest closet, and a structural glass partition

(Continued from page 76)
when it comes to cleaning windows.
Screens snap into place from the inside, roll up for storage and are
easily manipulated.

### Wood Doors

Wood doors are made of many species, including softwoods, hard-woods, plywood, fir, Ponderosa pine, and in a variety of types of construction including flush, paneled, and in combination with glass inserts or panels.

Exterior doors for both home and commercial entrances are frequently heavier and more ornate than many interior doors. Both Ponderosa pine and Douglas fir doors come in a wide variety of sizes and designs, for both interior and exterior applications. The Fir Door Institute has set standards and specifications for the trade in the fir door group, and doors are



STAINLESS STEEL ventilating windows for glass block openings have heads and iambs of heavy construction to support load. Rigid construction minimizes glass breakage, and metal to metal seating insures tightness

manufactured to close standards for alignment, balance, and function.

Popular among more recent developments has been the hollow core flush door made up of interior sections in grid or arch or ribbed form with an outer layer of plywood or other laminated material. The engineered interior construction is said to give such doors unusual strength and rigidity, while the exterior finishes are usually very fine and susceptible of adaptation to many types of interior design.

Attractive designs and finishes may be obtained from using such woods as red oak, white oak, white gum, gum, red gum, black walnut, or mahogany, to mention a few of the possibilities.

A substantial number of wood doors have been made with fireproofing treatment, the wood being impregnated with fire-resistant chemicals. This increases the weight of the doors about 30 per cent, and several such doors have been made to pass the one-hour fire exposure test of the underwriters' laboratories.

### Metal Doors

Metal doors of steel, bronze, aluminum, and a wide range of alloys are available in models which fit into both exterior and interior design. Hollow metal doors are easy to install, cannot sag, splinter, warp, or swell, and will give good performance for long periods of time.

Installation of metal doors is easy, as most manufacturers have already taken care of mortising, drilling, tapping, and prime painting. Cutting and fitting jambs, stops, and trim is eliminated. Frame and door need no mortising for hinges, locks and strikes. The net result is substantial time saved in installation.

Other types include metal-covered and tubular construction, and many metal doors are used in combination with large glass areas. Many manufacturers furnish sliding as well as conventional types of metal doors, and most of these doors come complete with frame and instructions for installation. As with metal windows, certain precautions must be taken to avoid scratches, to use a second coat of paint on steel doors and frames (unless a baked-on synthetic paint is used) and to avoid staining the metal with plaster droppings or other material.

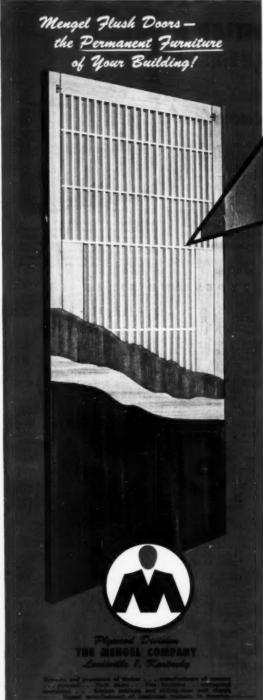
# Glass Doors

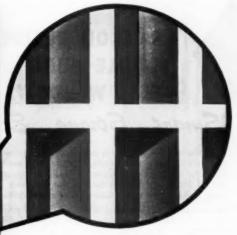
Glass doors for both exterior and interior applications follow the trend in modern design toward the use of larger glass areas in walls of both commercial and residential buildings. In commercial buildings, glass doors have come into common use for stores. In residential buildings glass doors are useful as a design feature creating a spacious appearance while affording separation; for example, keeping kitchen odors from the rest of the house, or preventing the colder air in enclosed porch from entering the rest of the living space.

Some glass door installations utilize stainless steel frames and fittings, but most use aluminum extrusions reinforced with structural steel. Because of the relatively great weight of these doors, special care must be

(Continued on page 84)

ALUMINUM FLUSH DOOR and jamb shown are easily installed, will not warp, and are fireproof. 24-gauge aluminum is combined with phenolic impregnated honey-comb filler. All standard sizes are available





THIS UNIQUE CORE
PREVENTS WARPING IN

MENGEL

HOLLOW-CORE Flush DOORS

Mengel Hollow-Core Flush Doors stay flat. Mengel's exclusive, Insulok core is just one of the important "reasons why". This patented interlocking grid has no directional "grain", provides a rigid, neutral core. Each strip is \%" wide, and the strips are only 1" apart. This closely-spaced grid provides greater bonding surface than is found in any competitive hollow-core door — helps give Mengel Doors unmatched strength and resistance to warping . . .

Mengel Flush Doors have genuine hardwood stiles, rails, lock blocks, cross-banding and faces. They are the finest that can be built. They are fully guaranteed without limitation as to time — yet sell for little more than softwood doors.

# STANDARDOR

Ask about Mengel's popular new economy door, Standardor. Made by the same craftsmen as the famous Mengel Door, yet simplified for large volume production bringing substantial cost-savings to you!



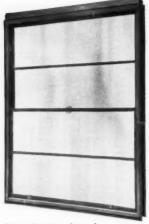
# TRUSCON RESIDENTIAL DOUBLE-HUNG STEEL WINDOWS

Smart...Strong... Economical

The excellent design of these popular windows makes them adaptable to all types of home architecture, from extreme modern to early provincial. The construction is extremely rugged, assuring long service. The slender frame and muntin bars permit the entry of the maximum of light, and assure a more pleasant view through the windows.

Truscon Double-Hung Steel Windows cost no more to buy and install than ordinary windows. Completely factory assembled and equipped throughout with stainless steel weatherstripping, they are delivered ready for installation. Their cost will fit the budgets of the most modestly priced homes. They can be economically installed. And, considering their long life, they actually cost LESS.

Combination Screen and Storm Sash Available at Reasonable Prices.



The twelve years of experience which architects, builders and owners have had with this window in all climatic locations, on installations in numerous small homes, apartment houses, dormitories, low-cost housing projects, and hotels, authoritatively confirms its superlative performance ability.

# TYPES AND SIZES



ullet consists shown are window dimensions. ullet tup opening dimensions equal window dimension plus  $i_2^{tr}$  in whoth and  $z_4^{tr}$  in Height.



Fracen Double-Hung Steel Windows permit emphaelzing the horizontal lines so much in vegue



Combinations of Truscon Double-Hung Steel Window types permit wide "picture" vistas.



Attractive effects are secured for the more conventions requirements by Trusten Double-Hung Windows in "E



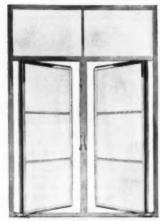
# TRUSCON RESIDENTIAL STEEL CASEMENTS

Graceful..Distinctive..Popular

These are the most aristocratic of all windows for the home, yet their adaptability permits them to be designed into architecture of any type. Their slender, graceful lines permit the entry of maximum light. Their wide swinging vents; pleasing glass panels; easy operation; and beautiful appearance appeal to home builders in every budget class.

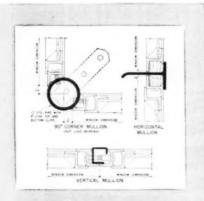
In rooms where windows are opened and closed frequently or where ventilation requirements are great and varied, Truscon Residential Steel Casements fill a utilitarian need in addition to being highly decorative. Side hinged casements can be so opened that they invite or retard the inward flow of air. High, small or unusually placed window openings all become more useful and attractive when fitted with Steel Casements.

Screens and Storm Sash Available at Reasonable Prices.



Truscon Residential Casements are equipped with Roto or Lever Operators which epen or close the ventilators without the necessity of moving the screen. The ventilators are held securely in any open position. The concealedatch locking handles provide positive cam action, drawing the ventilators tightly closed and weathertight. In ventilated units, all glass can be washed from the interior side.

# TYPES AND SIZES





Attractive room settings and picture windows are

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		SILL		SILL	39.00	****

. "NO" PICTURE WINDOW UNITS ARE SHIPPED MEGGLED DOWN FOR FIELD ASSEMBLY.

VIEWED FROM THE OUTSIDE.

FOR STUD OPERING OR ROUGH OPERING SIZES USE WINDOW DIMENSIONS SHOWN AND ADD IN IN WIDTH AND IN IN HEIGH



THIS LARGE double glazed picture window is raised and lowered electrically. A specially-treated screen covers the opening when the window is lowered

(Continued from page 80)

taken to follow the manufacturer's instructions, so that the doors hang true and operate correctly, with door frames plumb and in proper alignment. Special glass with as much as four times the strength of ordinary plate glass is employed to make possible large doors which have no supporting cross-pieces.

Such glass doors are made to close tolerances, normal being plus 0, minus 1/16. Doors may be of any size up to 48 inches by 108 inches, depending upon the strength of hinges. Doors are provided with adjustable pivot distances of from 1/8 to 25% inches, and standard builders' hardware is used. Door pulls or bars



GLASS DOORS for stores and public buildings readily combine with other treatments in the modern manner



JALOUSIES PROVIDE protection from sun and rain and also give ventilation

### POPULAR PATTERNS FOR INTERIOR DOORS

	1	POPULAR SIZE	S	
1'-6" x 6'-6"	2'-0" x 6'-8"	2'-4" x 6'-8"	2'-6" x 6'-8"	2'-8" x 6'-8"
1'-6" x 5'-8"	2'-0" x 7'-0"	2'-4" x 7'-0"	2'-6" x 7'-0"	2'-8" x 7'-0"
2'-0" x 6'-0"	2'-4" x 6'-0"	2'-6" x 6'-0"	2'-8" x 6'-0"	3'-0" x 6'-8"
2'-0" x 6'-6"	2'-4" x 6 6"	2'-6" x 6'-6"	2'-8" x 6'-6"	3'-0" z 7'-0"
N.D. 101 INNER FRAME	N.D. 1 TWO PA		N.D. 99 EE PANEL	N.D. 100 ONE PANEL
N.D. 108 SIX PANEL COLONIAL	N.D. EIGHT P	ANEL	N.D. 106 FOUR PANEL	N.D. 107 FIVE CROSS PANEL

National Woodwork Manufacturers Assn. Data

of light tubular construction are used, with holes for these drilled at the factory so that exact location must be specified in advance. Weather-tightness of glass doors is said to be equal to that of metal doors used for the same purpose.

### Combination Doors

In addition to doors which combine wood and metal, wood and glass, metal and glass in various ways, a number of manufacturers who produce combination screen and storm sash also produce combination screen and storm doors. Door and insert units are available both in wood and metal, in a wide range of stock sizes. They come equipped with interchangeable inserts for screening or storm glass.

### Cabinet and Cupboard Doors

Cabinets and cupboards offer an opportunity for the builder who operates his own millwork department. He can fabricate suitable cabinet

units ready for installation. There are, however, a large number of companies which provide a full range of metal and wood doors, both of the hinged and sliding types, for cabinet and cupboard applications,

Sliding doors for wardrobe cabinets have become increasingly popu-

(Continued on page 86)



SLIDING WARDROBE doors permit easier access to contents of closet and also save floor space

# New SOLID Success! NATIONAL

Sensational, New Sliding Doors







**◀** Rear View

# DIMENSIONS:

# Two Door Openings . . .

Outside jamb to outside jamb: 2'0", 2'6", 3'0", 3'6", 4'0", 5'0", 6'0", 7'0", 8'0".

Outside header to outside saddle: 6'91/3" or 8'0".

# Three Door Openings . . .

Outside jamb to outside jamb: 6'0", 7'6", 9'0", 10'6", 12'0" Outside header to outside saddle: 6'91/2" or 8'0".

SPECIAL SIZES WILL BE MADE TO ORDER IF QUANTITIES WARRANT IT.

They're Solid ... Made of United States Plywood Corporation's Amgzing, New novoply.

Constructed with United States Plywood Corporation's amazing NOVOPLY, SLI-D-O-O-RS are guaranteed not to warp. They are solid throughout and slide silently on precision-engineered, ball-bearing rollers.

From every point of view, SLI-D-O-O-RS offer every advantage...

- Adjustment and construction procedures have been reduced to the simplest minimum.
- SLI-D-O-O-RS are a combination of NOVOPLY and hardwood jambs, headers and saddle for completely warp-proof, easy operating, sliding action. Oak saddle blends with finished hardwood floor.
- SLI-D-O-O-RS are supplied with fascia so that only the handsome sliding doors are visible.
- NOVOPLY takes paint beautifully. It will not bleed or produce an unsightly "orange peel" effect.
- Priced right for builder and customer.
- When properly adjusted, rear slide guides permit removal of door or fasten securely to prevent door from falling from casing. Doors are as attractive from the back as from the front.

Write for complete, informative

NATIONAL

\*Trade Mark Registered-Putented Other Patents

# POPULAR MODULAR SIZES OF WOOD WINDOWS

OPENING SIZES	G	LASS SIZES-	13%" CHECK	RAIL WINDOV	VS.
(Note: Windows are made 1/2" nurrower and 1/4" sharter than window open- ing sizes shown below)	Two	Faur Links	Las Nava		
	Light	High	Light Wide	Top Six Light	Twelve
2-0x3-2 2-0x3-6 2-0x3-10 2-0x4-6 2-0x5-2	20x16 20x18 20x20 20x24 20x28	20x 734 20x 834 20x 934 20x 1134 20x 1336	6½x16 6½x18 6½x20 6½x24 6½x28	6½x 8 6½x 9 6½x10 6½x12 6½x14	62/2x 8 62/2x 9 62/2x10 62/2x12 62/2x14
2-4x3-2 2-4x3-6 2-4x3-18 2-4x4-2 2-4x4-6 2-4x4-10 2-4x5-2	24x16 24x18 24x20 24x22 24x24 24x24 24x26	24x 7 % 24x 8 % 24x 9 % 24x 10 % 24x 11 % 24x 12 % 24x 13 %	7 2 ½ x 16 7 2 ½ x 18 7 2 ½ x 20 7 1 ½ x 20 7 1 ½ x 22 7 2 ½ x 26 7 2 ½ x 26 7 2 ½ x 26	717/2 8 717/2 9 717/2 9 717/2 10 717/2 11 717/2 12 717/2 13 717/2 14	8 x 8 8 x 9 8 x 10 6 x 11 8 x 12 8 x 13 8 x 14
2-8±3-2 2-8±3-6 2-8±3-10 2-8±4-2 2-8±4-10 2-8±4-10 2-8±5-2	28x16 28x18 28x20 28x22 28x24 28x26 28x26	28x 7 34 28x 8 34 28x 9 34 28x 10 34 28x 10 34 28x 12 34 28x 13 34	9 12x 16 9 12x 18 9 12x 20 9 12x 22 9 12x 24 9 12x 26 9 12x 28	9 52 8 9 52 8 9 52 8 9 52 8 10 9 52 8 11 9 52 8 12 9 52 8 13 9 52 8 14	91/gx10 91/gx12 91/gx13 91/gx14
4.5	173		Top Four Light Wide	Top Eight Light Four Wide	Sixteen
3-0x3-2 3-0x3-6 3-0x3-10 3-0x4-6	32x16 32x18 32x20 32x24	32x 734 32x 834 32x 934 32x1134	713/4x16 713/4x18 713/4x20 713/4x24	7 13/6 8 7 13/6 9 7 13/6 9 7 13/6 10 7 13/6 12	71%x 8 71%x 9 71%x10 71%x12
3-4x3-10 3-4x4-4	36×20 36×24	36x 936 36x1136	817/4×20 817/4×24	817/4×10 817/4×12	817/4E 8 817/4E12

(Continued from page 84)

lar, especially since high construction costs have cut bedroom space to the point where sliding doors in thin wall partitions make for a real space-saving in the room. Decorative effects may be obtained by using flush types or panel types.

### Special Types

Louvred doors have become popular in warm climates for entrance installations, and in colder climates for interior uses. Louvres may be of glass, wood or metal, and doors are available in a wide range of materials to fit into design requirements. The jalousie-type of door claims the advantages of controlled ventilation with privacy.

Sliding doors either hung on a track with rollers overhead or resting on rollers at the bottom, are often used by the builder to gain space or add convenience to the home. They are particularly useful in connection with entrances to basement or attic stairs, in hallways where swinging doors would be in the way, and between rooms which can be thrown together for added spaciousness by opening the doors. These are frequently used in pairs like double doors. Sliding doors for closets are also available from a number of manufacturers.

One manufacturer of recessed doors makes a special type of sliding



FLEXIBLE DOORS and room dividers are used like standard doors. No trim is needed. Usually they hang trom ceiling



PLASTIC AND FABRIC coverings for folding doors mounted on steel frames make possible great space saving and can be used as design features

vetional Woodwork Manufacturers Assn. Data

door without ordinary tracks above or below, but built in a "package" with an extended double frame and spring construction which suspends the door while it is pulled shut. The unit comes ready for installation in standard wall construction.

Folding doors of hinged construction are largely being supplanted in new construction with flexible folding doors of several types. These are either vinyl-covered plastic units mounted in steel frames which come ready to install or strong, lightweight wood slat material woven together and suspended from an overhead track. They operate easily, and add a note of vertical corrugation which works into other design elements in the room in a pleasing manner. Builders estimate that folding doors take from 20 to 50 per cent of the space needed by ordinary doors.

Fire-resistant doors for special purposes in small commercial buildings are also found useful in home construction in the custom-built field. These may be of metal or metal-covered wood, and in some instances are of chemically-treated wood. Various manufacturers provide a wide range of models and sizes which have passed the underwriters' one-hour fire-rating test.

### Roll-Up Doors

Rolling doors for garage entrances or service entrances include roll-up (Continued on page 92)

# The internal construction of

# **ATLAS FLUSH DOORS**

means

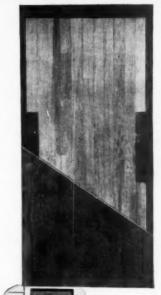
# lasting <u>beauty</u> and lasting strength

The exterior beauty of an Atlas Flush Door rests not alone on the simplicity of its lines and the superior quality of its surface panels . . . Its engineered, internal construction is a major factor that assures permanently fine appearance.

Whatever you choose for surface panels
— Northern Hardwoods, Southern Gum,
Western Fir or rarer imported woods:
Avodire, Mahogany, Prima Vera and the
like—the principles of construction remain
the same.

There is an Atlas Flush Door to fit every architectural scheme and every budget. If the door is to be painted, less expensive paint grade veneers are available. Similarly, stains on gum offer a choice of Mahogany, Wainut and other "furniture" finishes—with economy.

Every Atlas Flush Door is the product of a single, wholly integrated organization. From standing tree to completed door, there is one standard of control and inspection — one responsibility. We'd like you to know more about Atlas Hollow Core and Solid Core Flush Doors. For Illustrated literature, kindly address your request to Department 62.





# SOLID

The core material of the Atlas Salid Core Flush Door is Balsa Wood — inert, proof against stress and warpage. With the same K factor as cork, Balsa has important sound-deadening qualities, Its low thermal conductivity means efficient insulation, Its light weight means light weight for the finished door. The core blocks are positioned within a kiln-dried frame. Lock blocks on both sides permit the door to be hung from either right or left.





## HOLLOW CORE

In the Atlas Hollow Core Flush Door, kiln-dried soft wood struts—running both laterally and perpendicularly—interlock to form a grid. Wherever two struts interlock, the outer corners are beveled to permit free air circulation, The carefully machined frames are of kiln-dried White Fir or Ponderosa Pine, Lock blocks on each side permit hanging from either right or left. Before the surface panels are bonded to core and frame, the interior surfaces have been completely sized. to

counter-balance the pull of the final exterior finish.



### 18 MANUFACTURING PLANTS

Anderson, Cal.
Crescent City, Cal.
Laurel, Del.
Brunswick, Ga.
Haulton, Me.
Greenville, Me.
Patten, Me.
Cadillac, Mich.

Gladstone, Mich. Munising, Mich. Goldsbora, N. C. (2) Plymouth, N. C. Klamath Falls, Ore. (2) Partland, Ore. Williamsport, Pa. Newport, VI. PANEL AND DOOR DIVISION

ATLAS
PLYWOOD CORPORATION

# 24 SALES OFFICES AND WAREHOUSES

Boston, Mass.
Los Angeles, Cal. (2)
Oakland, Cal.
Sacramento, Cal.
San Francisce, Cal.
Denver, Colo,
Chicago, III.
Evansville, Ind.
Detroit, Mich.

New York, N. Y.
Goldsboro, N. C.
Cleveland, Ohio
Dayton, Ohio
Oktohomo City, Okla.
Fortland, Ore.
Firtsburgh, Po.
Carous Christi, Tex.
Mouston, Tex.
San Antonio, Tex.

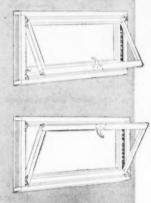
STATLER BUILDING, BOSTON 16, MASS. \* Telephone: Hancock 6-0016 \* Teletype: BS-644

APRIL 1952

# Mindowalls

# 4 Complete WOOD Window Units

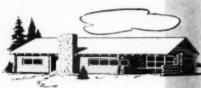




# ANDERSEN BASEMENT-UTILITY WINDOW UNITS

Packed in cartons, completely set up for quick installation. Includes screen. Storm sash optional. Modular sizes.





# REVERSIBLE SASH

Ingenious hardware permits hinging of sash at top or bottom. Removable sash can be reversed in a matter of seconds.



# MANY ABOVE-GROUND USES

In stack or ribbon groupings, or singly, this Andersen unit has many aboveground uses. Ideal for cabins, garages, farm and commercial buildings.

 Specification data on Andersen WINDOWALLS is in Sweet's Architectural and Builders' Catalogs or will be sent by us upon request. See your local lumber or millwork dealer for further information.





### **NEW! WIDER SASH**

ANDERSEN CASEMENTS are now available in two sash widths, 18 inches and 221/2 inches. The illustration above shows the 18 inch sash.

indowalls \* windowalls are complete window units... precision

manufactured from beautiful, insulating wood. See your local millwork dealer or write us for more information.

Andersen Corporations . Window Specialists . Bayport, Minnesota



# TRUSCON RESIDENTIAL INTERIOR STEEL DOORS

SWING DOORS AND FRAMES - SERIES 50

Smart...Rigid...Permanent

Truscon Series 50 Steel Doors and Frames are designed to meet interior requirements for all types of residential structures. Precision engineered and manufactured of high quality steel, these doors and frames insure perfect fit and permanent trouble-free operation. Most popular sizes of doors and frames are available for prompt delivery from strategically located warehouses.

Designed to compete in cost with doors of any other material, low cost is achieved through the economies of mass production. Additional construction savings are made possible by ease and speed of installation which can be accomplished in less than one third the time required for "on the job membled" types.

Doors are  $1\frac{3}{6}$  thick and of a pleasing, flush design. They are available in the standard height of 6-8°, and with the five most popular widths, 1'-8', 2'-0', 2'-6', 2'-8' and 3'-0', being stocked in warehouses. Special widths and heights can be furnished on request. Four types of locksets, designed to meet all normal requirements of residential doors, are offered. They are either Schlage "A" or Lockwood Type SB with both of bright brass material.

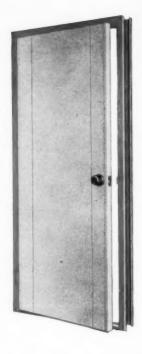
Frames for the doors are designed to fit practically every type of wall construction. Shipped knocked down, they are easily and quickly assembled with the corner connections forming neat hairline joints. Frames are available in depths of  $2\frac{3}{2}4^{\circ}$ ,  $3\frac{1}{2}4^{\circ}$ ,  $4\frac{1}{2}4^{\circ}$ ,  $5\frac{1}{2}4^{\circ}$  and  $6\frac{1}{2}4^{\circ}$ , with the last two depths procurable from warehouses in the stock door sizes mentioned above.

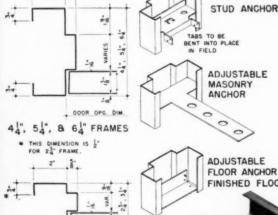
Doors shipped from warehouse stocks are packaged in sturdy cartons for protection during shipment. Fach door leaf is designed for use in either right or left hand swing, and to open in or out. Frames, however, must be ordered right or left hand to accommodate required swing of door and are bundled for shipment.

Underwriters' Labeled Doors and Frames are available on special order. Consult the nearest Truscon esentative for detailed information.

**ANCHORS** 

WELDED





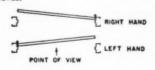
FRAME DETAILS

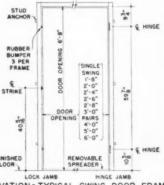
IS GAUGE

54" AND 64" DEPTHS.

FLOOR ANCHOR TO FINISHED FLOOR DOOR OPG. DIM. lamb and head m 23" & 34" FRAMES bers assembled. The Iwe tenons bent in 23" FRAMES ARE FORMED FROM place, securely lock-6 GA. STOCK, ALL OTHERS ARE ing the joint. WAREHOUSE STOCK FRAMES ARE

HAND OF DOOR MAY BE DETERMINED BY REFERRING TO SKETCHES BELOW NOTE THAT DOOR MUST ALWAYS SWING AWAY FROM POINT





EVATION - TYPICAL SWING DOOR FRAME 23" FRAMES ARE OF 16 GA. STEEL; ALL OTHERS OF 18 GA.



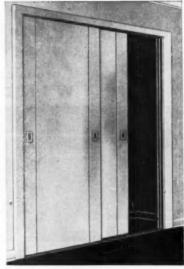
# TRUSCON RESIDENTIAL STEEL DOORS

# SLIDING CLOSET DOORS - SERIES 51 AND 51B

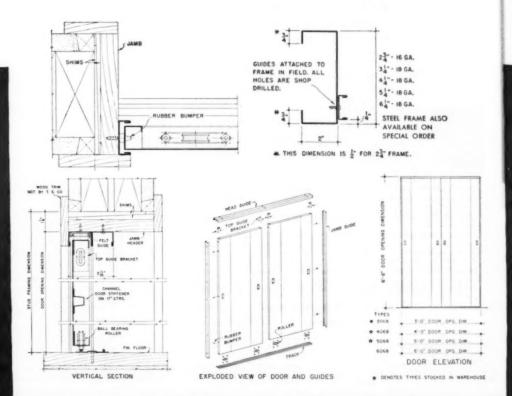
These modern Sliding Doors provide total closet accessibility, more usable floor space and materially reduce construction costs. Outstanding economy is obtained through the elimination of material and labor required, (1) to construct and plaster approximately one half the area occupied by the full width of the Sliding Door opening, and (2) to furnish and install frame, swing door and hardware.

Series 51 and 51B Flush Type Sliding Closet Doors are precision made of prime quality cold rolled sheets heavily reinforced for rigidity, thus insuring perfect fit and permanent trouble-free operation. Each door is equipped with two ball bearing rollers, dense felt top guides and rubber bumpers at jambs to provide smooth, quiet operation.

Finger pulls of brass are fitted into each side of both panels at the factory. Units are available in four standard widths, 3'-0", 4'-0", 5'-0" and 6'-0". Height of all doors is 6'-8".



Two sizes carried in stock: 4'-0"x 6'-7 1/4" and 5'-0"x 6'-7 1/4".



# Pella WOOD CASEMENT WINDOWS



# MAKE CUSTOM WINDOW EFFECTS FROM STOCK-SIZE UNITS

Pella stock-size casement units can be combined into hundreds of custom-like effects of varying width and height. Installation cost is minimized because Pella wood casements are factory-fitted and assembled, individually packaged, ready to place in rough wall openings.



# CHECK THESE CONVENIENT Pello FEATURES

ROLSCREENS — Pella casements are equipped with inconspicuous inside Rolscreens that roll up and down like window shades. Rolscreens operate with finger-tip ease. Never need painting, storing, putting up or taking down.

**DUAL GLAZING AND WEATHERSTRIPPING** — All Pella casements are dual glazed to insulate against winter cold and summer heat. Sash is weatherstripped on all four sides to eliminate drafts.

**EASY TO OPERATE** — Pella's patented hinge design and construction assure easy operation.

FIT ALL TYPES OF ARCHITECTURE — Pella casements fit snugly into wood, frame, brick, stone, brick veneer, etc. They convey dignity and stateliness to Colonial architecture . . . emphasize Cape Cod "coziness" . . . lend breadth to Modern or Ranch styles.

3-LIGHT WIDE UNIT—Only Pella builds these wide casement units, made possible through Pella's patented hinge design, superior sash construction and steel inner frame. Ventilating windows have glass sizes up to 24" wide by 60" high!

FOR FURTHER INFORMATION See Sweet's Builder's File 17c/ROL or mail the coupon today for a complete set of Casement Details No. 1050M.

Without obligation, send me "PELLA CASEMENT Installati	EEN COMPANY, Dent. D-27, Pella,	lowa
Instructions in Full Size Casement Details No. 1050M."		

Name				
Firm		-		 
Address	-		 	 

PELLA CASEMENTS . ROLSCREENS . VENETIAN BLINDS



GLASS SLIDING DOORS facilitate gardening for this home owner. Similar applications are useful for porches and solariums

(Continued from page 86)

type of grilles used also in porch and patio treatments in modern home construction. Rolling doors are neat in appearance, easy to operate, save space, give weather protection, burglar protection, and fire protection if treated with fire-resistant material. They can be operated automatically if desired.

Modern revolving doors are almost universally installed of glass and metal construction in modern small commercial buildings. Advantages of revolving doors are said by manufacturers to include traffic control, air control, savings on fuel bills, increased store profits from added floor space, and automatic collapsing features for emergency operation. Revolving units operating on similar

(Continued on page 96)





TWO VIEWS of revolving unit used in small home closet construction. All stored material is easily reached



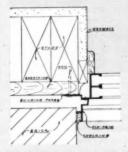
# FOR BRICK, BRICK VENEER CEMENT BLOCK or STUCCO



# 7 modular sizes

NUMBER .	WINDOW DIMENSION
No. 2020 M	2'-0" x 2'-0"
No. 3020 M	3'-0" x 2'-0"
No. 3034 M	3'-0" x 3'-4"
No. 3420 M	3'-4" x 2'-0"
No. 3434 M	3'-4" x 3'-4"
No. 4020 M	4'-0" x 2'-0"
No. 4074 H	41 001 - 31 411

NOTE: Sizes shown are Grid Sizes. For Masonry Opening Sizes add %" to height and width.



JAMB SECTION WITH FIN-TRIM IN BRICK VENEER CONSTRUCTION

# 5 standard sizes wood frame installation

NUMBER	WINDOW DIMENSION
No. 110165	1'-9%" x 1'-5%"
No. 111175	1-11' x 1'-7"
No. 3020 5	3'-016" x 2'-016"
No. 3921 S	3'-9%" x 2'-1%"
No. 4638 5	4'-6" x 3'-8"

# ALWINTITE

HORIZONTAL Sliding WINDOWS

with universal FIN-TRIM

Save installation time Reduce materials' cost

HIT of the Chicago builders show, ALWINTITE sliding windows with FIN-TRIM are the rave of builders everywhere.

With the new universal FIN-TRIM you can build in your sliding windows as you go along. No longer is it necessary to first install a wood buck to hold the window. Now your windows can be nailed in place, in frame construction, with any exterior finish—can be built in position in cement block or brick construction.

Think what this means in terms of quicker installations, reduced labor, lower costs. When you order your sliding windows with the new FIN-TRIM, there are no accessories to bother with, no special frames, no exterior wood trim or casing to buy, apply or paint. You won't have to paint around the outside of the windows, no matter what kind of finish you use. And what's more, you have a window that's flashed all around—one that gives a weathertight installation.

ALWINTITE sliding windows are the lowest priced aluminum windows on the market today—a "must" for every builder interested in keeping costs down with sales appeal high. Investigate now. Ask your local ALWINTITE dealer today or write for complete details to Dept. AB-4.

ALWINTITE DIVISION

# GENERAL BRONZE

CORPORATION

Stewart Avenue . Garden City, N. Y.

DOUBLE-HUNG WINDOWS - SLIDING WINDOWS - VIEWAII WINDOWS
TRIPLE CHANNEL COMBINATION STORM WINDOWS AND SCREENS



SLOT (A) ENGAGES SCREWS IN TOP OF WINDOW FRAME BY PUSHING TAB ON FITTING (B) WHICH SLIDES IN SLOT (C)



# Builders say: TENSION-title window screens <u>pay off</u>

\* Trade Mark

Preferred by home-owners
--- yet it's the lowest cost
screen to install!

- All aluminum! Rust-proof!
  - Attractive Non-staining
  - No painting --- No fitting
- Sizes for all d. h. wood windows
  - Exclusive GUIDE BAR Speeds Installation

**★Immediate delivery**¥
NO USE RESTRICTION

UNDER NPA-M-4A



Also available with Kaiser SHADE screening

TENSION-tite shade screens keep out the direct rays of the sun as well as insects. Use these screens on south and west windows to make the hottest rooms the coolest.



RUDIGER - LANG CO.

Factories in Berkeley, Calif., and Toccoa, Ga.

P. O. BOX 468, TOCCOA, GEORGIA









CATCH (A) ENGAGES SCREW (B) ON SILL. THIS CATCH ALSO HOLDS THE ADJUSTMENT BAR (C) WHICH IS PUSHED DOWN ON SILL FOR INSECTIONT FIT. BAR (C) ALSO SERVES AS A TEMPLATE OR GUIDE, LOCATING THE CORRECT POSITION OF THE SCREWS WHEN INSTALLING SCREEN.

# **These Superior Features make**

# Roddiscraft FLUSH DOORS

# EASIER TO SELL - BUILD LASTING CUSTOMER SATISFACTION

FOR OFFICE BUILDINGS, SCHOOLS, HOSPITALS, HOTELS, INSTITUTIONS, APARTMENT HOUSES



# RODDISCRAFT SOLID CORE Flush Doors

FIRE RESISTANT - exceed the 40 minute fire test. Provide extra protection where needed in multiple and single dwelling units. SOUND RESISTANT- develop an average sound transmission loss of 30.9 decibels - only a little less than specially constructed sound retardant doors of much greater cost.

RESISTANT TO ABUSE - core, crossbandings and face veneers welded into a single unit with the inherent strength of true plywood

WATERPROOF - for exterior and interior use. Phenolic resin glue provides two completely waterproof shields over entire area of the door on each side of the core.

STANDARD THICKNESS FACE VENEERS - provide greatest resistance to checking and abuse - permit better matching.

FOR RESIDENCES, MULTIPLE DWELLINGS AND OTHER INSTALLATIONS



# **RODDISCRAFT Housemart Hollow Core Doors**

7-Ply construction - 3-ply face panel bonded to both sides of the core assembly - offers these added advantages:

- 1. Extra strength
- 2. Greater resistance to distortion
- 3. Sure protection against core pattern showing through face veneers after finish is applied

Roddiscraft Housemart Hollow Core doors are generously made contain ample wood at side and top and bottom edges for trimming and the safe anchoring of hardware. Lock blocks on both sides offer a wide choice of hanging positions.

There is a Roddiscraft Door to meet every specification calling for wood doors. Call your Roddiscraft dealer for complete information.

# NATIONWIDE Roddiscraft WAREHOUSE SERVICE

Combridge 39. Mass... 229 Vassar St. Charlotte 6, N. C.... 123 E. 27th St. Chicago 32. Illi... 3865 W. 41s St. Cincinnati 2, Ohio ... 836 Deopt St. Dallas 10, Texas... 2800 Medill St. Detroit 14. Mich... 11855 E Lefter on St.  San Antonio 6, Texas . 727 N. Cherry St. San Francisco 24, Cal. 345 Williams Ave.



# THIS BEAUTIFUL NEW HOME HAS

# **AMERICA'S FINEST WINDOWS**

Fleetlite



70

Contribute Modern Beauty Reduce Building Time Provide Living Comfort

A Fleetlite Window is different

—all parts are manufactured and assembled in the factory and it is shipped complete, ready to install.



Fleetlite is a complete year-'round unit amazing in its ingenuity of design and in the benefits it offers home builders and home owners.

### OVER 500 CONTRACT-BUILT HOMES IN THE BUFFALO AREA

... and thousands throughout the country are now equipped with Fleetlite windows. Owners are delighted with the beauty, convenience and everlasting investment value.

WRITE TODAY for complete literature on Fleetlite Windows way Fleetlite sash snap out for cleaning.
For warmer winters and cooler summers.

As advertised in House Beautiful, House and Garden, Small Homes Guide, American Builder, Practical Builder, Architectural Forum, and Sweets Architectural File.

FLEET OF AMERICA, INC.,

112 PEARL STREET, BUFFALO, N. Y.

They appreciate the freedom from the chore of removing, storing and reinstalling storm sash and screen. They like the (Continued from page 92)

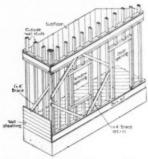
mechanical principles are available for closet installations, with fixtures to increase accessibility of the closet's contents.

### Framing

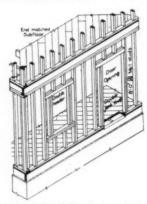
In house construction, wall openings for windows and doors must be properly reinforced to avoid weakening the entire structure. The extent of reinforcement and the type of treatment depend upon the size and location of the opening. In framing. it is common good practice to double headers, with the larger dimensions set vertically at the top. Where openings are wider than conventional windows or doors, diagonal bracing or trussing is required to obtain sufficient strength to avoid sagging or failure. Good nailing practices are particularly essential at this point.

All rough window and door openings must be of the correct size to take the window or door frame with-

(Continued on page 100)



CUT-IN OR LET-IN bracing around openings or at corners should be close to a 45-degree angle. Adequate corner bracing or diagonal sheathing are prerequisites of good construction



ACCURATELY FITTED door and window framing is an indication of careful building for permanent stability

AMERICAN BUILDER



DOOR **FRAMES** 

Seen and praised by hundreds of enthysiastic builders at the N.A.H.B. Convention.

# UNIQUE IN DESIGN

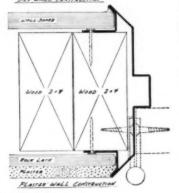
# . . . for the modern cost-conscious builder

LOWER FIRST COST - the most economical door frame on the market.

LOWER INSTALLED COST - can be installed in a fraction of the time required for ordinary jamb and trim. No temporary plaster stops to be erected and dismantled, no trim to be applied later, no mortising of jambs for hinges and strike. No filling of nail holes, no prime painting.

NAIL HOLES are provided every 7" along flanges of frame, assuring rigid attachment to sub-frame and preventing vibration.

FURNISHED IN STANDARD SIZES Frames supplied for 13/8" or 13/4" doors DRY WALL CONSTRUCTION



RECESSED EDGE designed for both plaster and wall board. Edge of frame provides a plaster ground and cuts down plastering time.

SHIPPED KNOCKED DOWN - compactly packaged for easy handling and storage. Assembled without use of tabs or slots.

JAMBS PUNCHED AND RECESSED for standard 31/2"x31/2" butt hinges. Hinges furnished only when specified and then at extra cost.

TRIM APPEARANCE - in tune with today's modern interiors.

Sold Through Leading Building Material Dealers

# Kewanee Manufacturing Co.

452 Burlington Ave.,

Patent Applied For

Kewanee, Illinois

# Look what you save with "MODERNFOLD" Doors

# "Modernfold" Doors Save Space

... because they fold rather than swing. A standard size "Modernfold" door stacks nearly against a door jamb when not in use; brings to life valuable floor and wall space normally "killed" by a fully opened swinging door.

At left, a large "Modernfold" door serves as a "movable wall" to divide rooms. Folding it against the outside wall creates a large 30-foot living room . . . unfolding it fully adds an extra bedroom. The ability of "Modernfold" doors to make rooms do double duty helps speed sales for today's small homes builders.

# "Modernfold" Doors Save

Folding framework is steel—double strength. Patented hinge plates at both top and bottom provide smooth, accordion-like folding action; assure extra strength and rigidity. Unusually tall



framework

doors equipped with additional hinges. Covering is heavy cotton fabric impregnated with Vinyl resin plastic. Withstands more flexing and abrasion than leather. Flame-resistant. Resists peeling, chipping, cracking and fading. Waterproof. Washes with soap and water. Available in 22 beautiful colors.



In Sizes to Fit Every Requirement

STOCK	DOORS-Availab	la from distribute	or's stock
Nume	Width "W"	Height "H"	Stock "F"
Leader	2'-4"	6'-81/5"	634"
Master	2'-101/2"	6'-81/3"	7%"
STANDARD	DOORS		
	2'-4"	6'-81/2"	65/8"
Regent	2'-101/2"	6'-81/2"	73/6"
Norfolk	3'-5"	6"-81/2"	8 %"
Colton	3'-111/2"	6'-81/2"	956"
Morton	4'-51/2"	6'-81/2"	10%"
Shelton		6'-81/2"	113/6"
Dixon	5'-6"	6'-81/2"	12%"
Alden	6'-1/2"	6'-81/2"	13%
Clinton	6'.7"	6'-81/2"	14%"
	· · · · 7'-11/2"	6'-81/2"	15%"
Morgan	7'-71/2"	6'-81/2"	16%"
Broadmoo		6'-81/2"	17%"
Loods	2'-1055"	8'-0"	75/8"
LaGrange	3'-5"	8'-0"	8 1/8"
Logan	3'-111/2"	8'-0"	95/8"
Loland	4'-51/2"	8'-0"	10%
Longfellev	w 5'-0"	8'-0"	
Livingston	5' 6"	8'-0"	12%"
Lacumb	6'-1/2"	8'-0"	13%"
Lincoln	6'.7"	8'-0"	1.43/9
Lament.		8'-0"	15%
Lansing.	· · · · 7'-71/2"	8'-0"	16%
Lexington	8'-2"	8'-0"	173/6"
Liverpool.		8'-0"	18%
Lorain		8'-0"	1956"
Limbell	9'.9"	8'-0"	20%
	100 316 F		

Any two doors listed above may be combined as a pair.
Custom-built doors available up to 20 ft. high, 40 ft. long.
Can be furnished for curved installations, and with mechanical assertions.

# "MODERNFOLD" DOORS SAVE INSTALLATION TIME







Step 1. Slide head track onto trolleys, raise door to standing position, fasten it in place.

Step 2. Attach jamb clips, screw jamb post to them. No planing or fitting necessary.

Step 3. Job is done! No hardware to install. No painting or finishing required.

Look in your classified directory—under "doors"

—for the name of our installing d'stributor.

# NEW CASTLE PRODUCTS, New Castle, Ind. SOLD AND SERVICED NATIONALLY

In Canada: Modernfold Doors 1315 Groone Avenue, Montreal



COPYRIGHTED NEW CASTLE PRODUCTS INC

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Beautiful and Convenient R·O·W Windows are *Removable*—to wash both sides indoors

R·O·W wood windows are available in a large variety of sizes and styles to meet all architectural requirements. For a catalog of sizes and details, write directly to R·O·W Sales Company, 1332 Academy, Ferndale 20, Michigan. R:0W

World's Largest Selling Wood Window





HOW TO REALLY SPEED DOOR AND FRAME INSTALLATION

> PRAMES GIV YOU THREE BIG TIME AND LABOR SAVINGS

- Pre-welded into complete one-piece assembly, VMP steel frames require no on-the-site assembly.
- Mortises in doors and frames for locksets pre-cut at factory — no onthe-site mortising.
- VMP flush metal doors exactly fit frames for perfect operation — no on-the-site cutting or fitting.

Why even consider using wood or any other door and frame when you get these three big installation cost cuts with VMP metal doors and frames. How much more satisfied you and your customers will be! For VMP steel frames never warp, sag, or crack. Never change dimension. Give longest, most dependable service. No customer complaints. No costly callbacks to repair doors or frames. And they're fireproof, too!

Order VMP metal doors and frames for plaster wall, masonry wall and dry wall construction, and cut your door and frame installation costs way down!

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drawings gives valuable door and
frame cost cutting data. Send for
your personal copy — yours without
charge. Just write "VMP Steel
Frames" on your letterhead or card,
and mail today to Dept. G4.



1 IRGINIA METAL PRODUCTS
CHRPORITHIS

of Budson Street, New York 13, New York

# (Continued from page 96)

out difficulty. This assures tightness and rigidity of construction. Before framing rough openings for windows, the dimensions of the window frames, including sash balances or weights, must be verified. These vary according to the type and weight of sash.

To make an opening for a door, add three inches to the width of the door and three inches to its height for both outside and inside doors. Measurements will vary slightly with individual door units. The main point to remember when framing any window or door is that the opening must be strong and rigid in all respects, and planned so that the door or window can be caulked or sealed and made weathertight.

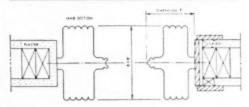
(Continued on page 104)

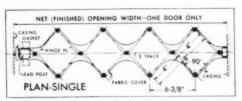
### ACCORDION TYPE DOORS, STYLES AND SIZES

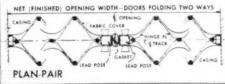
# EXPOSED TRACK ONLY-INCLUDING FINISH HARDWARE-

	AND MILL	SEFECIED LAB	KIC3	
NAME	WIDTH "W"	HEIGHT "H"	STACK "F"	WEIGHT
Duke	2'- 4"	6'-81/2"	6%"	45
Regent	2'-101/2"	6'-81/2"	7 1/4"	50
Norfolk	3'- 5"	6'-81/3"	8%*	5.5
Colton	3'-111/2"	6'-81/2"	9%"	60
Morton	4'- 51/3"	6'-81/3"	10%"	65
Shelton	5'- 0"	6'-81/2"	1156"	70
Alden	6'- 01/2"	6'-81/3"	13%"	80
Winton	7'- 11/2"	6'-81/2"	15%	95
Broadmoor	8'- 2"	6'-81/3"	17%	115
Logan	3'-111/2"	8'-0"	9%"	70
Leland	4'- 51/2"	8'-0"	10%*	80
Longfellow	5'- 0"	80.	11%"	8.5
Lacomb	6'- 01/2"	8'-0"	13%"	95
Lamont	7'- 11/2"	# '-O"	15%"	110
Lexington	8'- 2"	B'-0"	17%"	130
Lorgin	9'- 3"	8'-0"	195/8"	150
Lancaster	10'- 31/3"	8'-0"	21%"	175

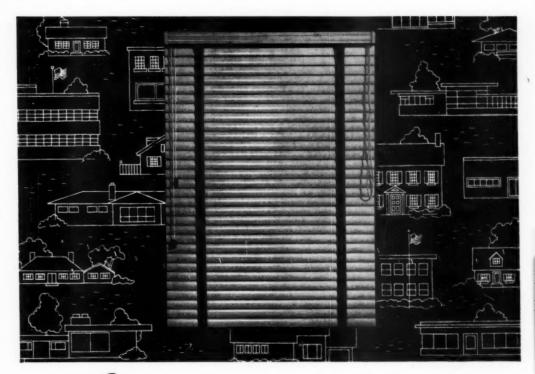
# \$TOCK DOORS Immediately Available In Neutral Colors Leader 2'- 4" 6'-8½" 6% 45 Master 2'-10½" 6'-8½" 7½ 50







Moderniold Door Data



# out front wherever top quality is a must:

# the all- **Hexalum** blind

Never before . . . a blind that stands so far ahead of the rest in quality and beauty, yet costs so little to maintain!

stays new, beautiful ... clean!

new decorating possibilities!

- Flexalum tapes are non-porous plastic. Wipe clean with a damp cloth, last for years, won't fade, shrink, stretch or fray.
- cords are wipe-clean plastic too. Retain their tensile strength, wear longer without fraying or breaking.
- slats are sleek aluminum, spring-tempered for greater resilience, will keep their shape.
   Mar-proof finish won't chip, crack, peel, rust.
- sturdy top and rigid bottom bar also mar-proof finished.
- sealed-in-steel, friction-free mechanism is lubricated for life.
- plastic tassels are noiseless, unbreakable.
- extended top bar holds draperies too, without extra hardware.
- complete versatility of cord arrangement: Flexalum cords can be installed wherever most convenient.
- complete and perfect color-matching of every part . . . or choice of dramatic color contrasts,

uniform quality ... recognized quality!

- one and only one reputable manufacturer is responsible for every part of the all-Flexalum blind . . . your assurance that every Flexalum blind will be of the same superior quality.
- National advertising has convinced your customers of Flexalum quality.
   Let Flexalum help convince them of the quality of your building!

Write for free 8-page catalogue containing full details on the all-Flexalum blind.

HUNTER DOUGLAS CORPORATION, Riverside, California or 150 Broadway, New York 38 Canada: Hunter Douglas Ltd., Montreal, Que.

# STEEL A COMPLETE LINE OF

FROM ONE SOURCE

# STEELCRAFT STEEL RESIDENCE CASEMENTS MADE OF HOT ROLLED SECTIONS ... BONDERIZED



Steelcraft Steel Residence Casements are made of heavy hot rolled solid sections of uniform thickness, with butt welded mitred corners. Extra long reinforced hinges with bronze pins and washers provide ample clearance for safe and easy cleaning of the exterior of the glass from the inside. Sections are designed for maximum daylight. Heavy bronze finish roto or lever type hardware may be used for ease in operation of the ventilator. Screens and storm sash are easily attached to the inside of the frame. All casements are BONDERIZED.

# BONDERIZING SPECIFICATIONS FOR ALL STEEL PRODUCTS

All building products shall receive the standard Steelcraft Bonderized finish which includes a thorough cleaning by high pressure sprays of a hot alkaline solution and hot water, a uniform etch in bonderite chemicals, and painted with one coat of gray primer by the patented flow coat process to insure complete coverage, oven dried, and baked a minimum of twenty minutes at 300°F. This entire process of cleaning, honderizing, prime paint, and oven drying shall be continuous and automatic without manual handling.

TYPES AND SIZES

### CHECK THESE FEATURES

- · COMPLETE LINE
- . HEAVY HOT POLLED STEEL SECTIONS
- BONDERIZED
- . CORNERS MITRED AND BUTT WELDED
- EXTRA HEAVY REINFORCED HINGES
- . AMAZINGLY LOW PRICED

All Sizes and Types of Picture Frames, Windows, Combinations

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COMB-9-94 PICTORS FRAMES #178 GARGARATE

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# STEEL BASEMENT WINDOW



Steelcraft tilt-in type steel basement win-dows are made of hot rolled sections, which provide double weathering contact

provide ventilators trouble-free operation and are easily removed. Positive handle locks sash tight against frame. Screens are easily at-tached to the outside of the window. They are BONDERIZED

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# STEEL UTILITY WINDOW

For stock barns, basements, shops and ga-rages, Steelcraft utility windows provide continuous double weathering contact, and remov



and removable tilt-in type armless ventilators. Draft guards can be furnished. They are BONDER-IZED and given a shop prime coat of paint baked on in accordance with Steeleraft's Bonderizing Specifications.

# INTERIOR STEEL CASING

Consisting of head, jamb, and sill members, this casing eliminates plaster re-turns, stools and trim. Made of galturns, stools and trim. Made of galvanized steel BONDERIZED. Shipped knocked down for assembly in the field. Available in all types and sizes for Residence Steel Casements.

# **OUTSIDE-INSIDE TRIM**

This one-piece outsideinside surround is in-stalled at a fraction of the normal time required for multiple trim and casing. This unit eliminates plaster returns, stools and trim, In dry wall construction, the wall material is slipped under the surround, eliminating additional trim. Made of galvanized steel, and BONDERIZED.

# **EXTERIOR SURROUND**

Designed with identical contours and ends accurately coped, this surround presents neat corners and joints in the assembly. They are



nailed to the rough openings and the easement is attached with self-tapping serews. Made of galvanized steel, BONDERIZED.

STEELCRAFT MANUFACTURING COMPANY

# STEEL BUILDING PRODUCTS

WITH ONE RESPONSIBILITY

# STEEL SLIDING CLOSET DOORS



- Packaged Ready to Install
- Easy to install
- Cut construction
- Give added closet space
- Bigger selling point in home

Steelcraft's new metal slide closet doors give extra storage space to any closet and give

direct access too. No cutting . . . fitting . . . or unnecessary "extras". This door and frame is a complete packaged unit ready for installation!

# PIVOTED STEEL WINDOWS

- · Hot rolled new billet steel
- Sturdy heavy duty construction
   Double contact weathering
- Double contact weathering
   Built-in bearing type pivot
- · Easily installed

Made of hot rolled new billet steel, Steelcraft pivoted windows are engineered for permanent easy operation of the vented section. They cannot stick, warp or shrink and are BONDERIZED for protection. The outside sections are angle shaped to provide firm anchorage in the masonry or mullion connection. Double Flat contact weathering is provided on all four sides of the ventilator.



## STEEL DOOR FRAMES

Use this modern building product at a great reduction in cost. One-piece all welded construction . . . won't crack, shrink, swell or warp. Reinforced mitred corners won't open. Hinges spot welded to frame; adjustable brass strike plate furnished.

# KNOCKED DOWN DOOR FRAMES

Knocked down door frames are designed for economical shipping, for maximum storage space, for quick easy assembly and installation. They provide long trouble-free service and neat appearance.



# STEEL DOORS

DETAILS OF

SECTIONS

Steelcraft industrial steel doors will not warp, shrink, swell, chip or spinter. They are fire-resistant and will give years of trouble-free service. They come to the job with lockset and hinge cut-outs already fabricated to receive standard tubular lock-sets ... no fitting, no drilling or mortising, simply insert hardware and hang door. Rights and lefts are interchangeable by reversing the doors. Steelcraft doors are finished with a special baked-on

enamel providing an excellent base for field painting.



# LOW COST ALUMINUM



Easily installed by home owner on inside of casement . . just like screens. No fitting, no cutting or trimming, no special tools. Packaged for over the counter sales.

### STEEL LINTELS



Steelcraft formed steel lintels are available in a wide range of stock sizes for any window or door opening. Continuous ribs strengthen the heavy gauge steel, and provide an excellent base for brick and mortar, All lintels are BONDERIZED.

ROSSMOYNE, OHIO CINCINNATI



# STEEL MAIL THIS COUPON TODAY

THE STEELCRAFT MANUFACTURING CO., DEPT. AB-452
9017 BLUE ASM ROAD, ROSSMOYNE, O. (in Greeter Cincinneti)
Please send literature on full line

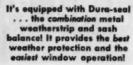
Title
Company Name\_\_\_\_\_

Business Address

City Zone State



This concavity is important



- Dura-seal's jamb member is made in one piece and its concave back surface provides a flexibility which maintains a constant air seal and smooth window operation even when the sash expands or contracts due to changeable atmospheric conditions. (Springs are completely covered—photograph shows cover down on lower sash to illustrate spring.)
- Full jamb weatherstripping provides better weather protection, eliminates paint-stuck windows and improves window appearance.
- Because Dura-seal is selfadjusting, it assures troublefree operation with no replacement or maintenance costs.

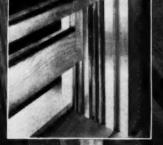
BUNLDERS! Ask your lumber dealer about Dura-seal ar see Sweet's File, Builders, Section 3g.

ARCHITECTS! See Sweet's File, Architectural, Section 19b.

Le



Monutestured by
ZEGERS INCORPORATES
0076 South Chierge Avenue
Chierge 17, W.



Dura-seal is cut exactly to the pitch of the sill—another feature that helps make a more attractive and efficient window.



WOOD LOUVRE doors help control ventilation and afford privacy at the same time

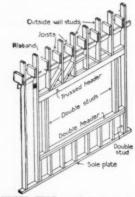
(Continued from page 100)

# Door Frames

Modular co-ordination has been definitely established by Project A-62 of the American Standards Association. As a building technique, it plays an important part in door frame construction. Basic frame designs have become more versatile and use varied materials of different weights and thicknesses.

Metal door frames which fit into either frame or masonry construction are available from a number of manufacturers, and may be used freely with modular construction. The frames are secured to wood stud partitions with metal clips, to masonry partitions with loose "T" anchors placed at masonry joints, and to steel stud walls by anchors welded to the frame (these may be bolted or welded to the steel studs

(Continued on page 106)



WHERE WIDE openings occur in the framing, extra care should be taken in header construction because so much of the load above is carried on these members. Illustrated is one good method. Note that diagonal members are carefully fitted and placed for rigidity

# for EASIER OPERATION, BETTER VENTILATION, WEATHERTIGHT SEAL

# VENTO STEEL WINDOWS



RESIDENCE CASEMENT WINDOWS

Extension type hinges, gracefully designed Roto or Lever type operators and positive cam action locking handles, allowing ventilator adjustment without screen removal. Available in all standard types and sizes.

# **VENTO**

"CHAMPION" BASEMENT WINDOWS

Three ventilation openings and sash removal. Double contact with leak-proof watershed sill. 14 gauge electrically welded frame, fins welded to jambs for quick installation. Three standard sizes, putty or puttyless glazing.

# VENTO

"THRIFTY" BASEMENT WINDOWS

A real economy window especially designed for lower cost housing. Two position ventilation and easy sash removal. Fin flanges at jambs for quick installation. Three sizes, putty type only.

# **VENTO**

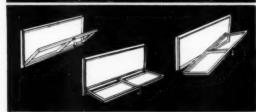
LINTELS for BLOCK or BRICK CONSTRUCTION

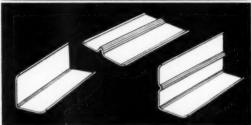
Of ample load-bearing capacity for window or door openings. Formed lintels of 10 gauge steel for block construction, with stiffening crimp in center, in lengths from  $2\frac{1}{2}$  ft. to 5 ft. Formed lintels for brick construction  $2\frac{1}{2}$  ft. to 5 ft. long of 11 gauge steel;  $5\frac{1}{2}$  ft. to 7 ft. of 10 gauge steel.

Also Vento "Champion" Barred Basement Windows; Vento "Champion" Utility and Barn Windows; Vento "Thrifty" Utility and Special Type Windows.









MEMBER METAL WINDOW INSTITUTE

See our catalog in Sweet's 1951 Architectural 27b/Ve or Sweet's 1952 Light Construction File 4c/Ve. Write us for full information and name of nearest distributor. VENTO

STEEL PRODUCTS CO.

247 Colorado Avenue

Buffalo 15, N.Y.

# **Residential Double Hung Metal Windows** 3' 0" 314" 2'0" E3045 E3445 B2051 "B" TYPES "E" TYPES 5-92 DIMENSIONS SHOWN ARE DIMENSIONS SHOWN ARE WINDOW DIMENSIONS £3459 £3859 WINDOW DIMENSIONS B3059 83459 B3859 FIXED PANELS 4'8" 4'0" 4'8" 3'4" 3'4" 4:0" 418" 314" 5'-12" 5-92 4.52 F3445 F4045 F4845 F4051 F4851 F3451 F4059 Metal Window Institute Data of ALCASCO Aluminum Casements GLASS SECTIONS Available only in

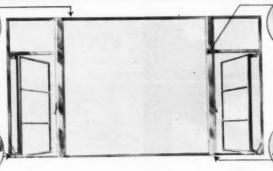
1 . FULL 1 1/4"

Alcasca . structurally stronger. Putty retaining groove—built into each section and designed for easy outside glazing,

### 2 . EXTENSION HINGES

Solid aluminum . . . Sturdy and trouble free

Full support. Stainless steel pin assures correct ventilator operation at all times.





# 3 . INSULATED

Alcasco Aluminum Casements can be furnished for regular plate or insulated glass in 1/2", 1/4", or 1" thickness.

# 4 · INTERLOCKING MULLIONS

install . . . Provides a perfect weather seal due to precision fabrication.

# PLUS these other Alcasco aluminum casement features

- extruded members are smooth fit snug at all points
- corners electrically flash welded greater strength . . , more rigid . . . neat, smooth appearance
- stand inspection customer satisfaction assured by the obvious evi-
- dence of careful workmanship
- selection over forty styles to choose from

Send for details and descriptive literature.







# A guy worth listening to"AL" THE BUILDER



Al is a builder who knows the score. He's been in the business a long time, through two wars, hard times, and two booms. Yes, Al knows the score. He knows it takes new thinking to stay on top, to keep his better men together and to keep building!

# Al says:

# "Be smartbuild in <u>both</u> markets"

"Your houses this year must be built to sell—if they are to turn over quicker than your competitors". And man, that takes some smart figuring. Competition is keen! But here's an angle: Give your houses extra eye appeal—and they'll sell fast! One sure way to add eye appeal is with Ualco Jalousies. Their smart glass louvres and satin-smooth aluminum frames give a different touch. They literally "make" a sunroom, a breezeway—and, used with other Ualco Windows, create dramatic effects buyers really go for. Give them this feature, and I'll guarantee you'll sell ahead of competition.

"And to stay ahead . . ready to jump the gun when restrictions are removed . . . keep your crews working; hold them together—by cultivating the vast remodeling market.

"With families growing, most people need to 'Make More Room'. By using Ualco Jalousies to enclose porches and patios, build breezeways and sunrooms, you can give 'em more room at a price they can't refuse.

"That's my advice. Go after the 4 billion dollar remodeling market in addition to new construction. Build in both markets—and CASH IN ON BOTH WITH UALCO JALOUSIES — A merica's newest, most wanted windows!"

You'll enjoy knowing Al. He's friendly and wise. From time to time he'll be passing along more of his ideas on building. Watch for him regularly.

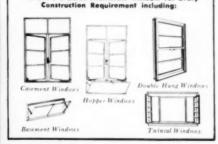


# ALUMINUM JALOUSIES

. . . Made by World's Largest Manufacturer of Aluminum Casement Windows

MAIL TODAY





• There's a Uaico Aluminum Window for Every

### GUARANTEED Immediate Delivery

from your supplier, despite restrictions—because of our vast, raw material supplies.

See Our Catalog

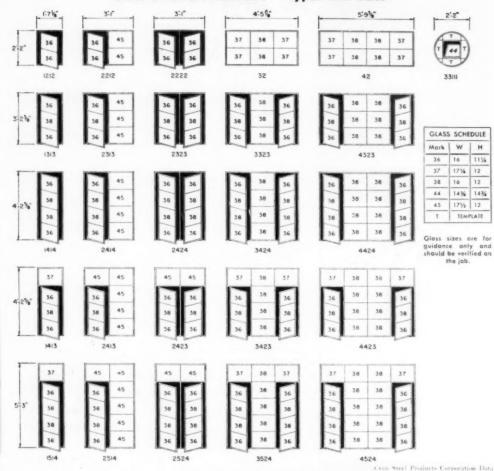
### UNION ALUMINUM CO., INC. Shoffield, Alabama —AB 4

Please send me at once

- ☐ Name of my nearest supplier of Ualco Aluminum Windows.
- Windows.

  ☐ Technical information and data.
- I'd like to know Al better. Please put my name on his mailing list.



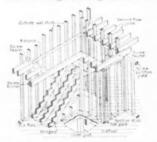


(Continued from page 104). for proper anchorage). Metal frames are supposed to add considerable rigidity to door openings. In addition, they are neat in appearance, easy to install, and assure door frames which will be trouble free for years to come.

### Window Frames

Wood window framing is finding the same modular principles helpful that are of great use in other phases of home construction. Even where complete window units are installed with frame included, the modular principles for arranging the rough window opening apply.

Metal window frames have been found especially useful in holding down over-all building costs because of their ease of installation, the job requiring only a matter of minutes. Windows are designed to slide into standard stud framing before erection. The rough framing for the win-



STAIRWAYS should be framed with not less than three horses and of stock wide enough to leave 31/2 inches of material behind each cut. Landing must be supported and stair braced against thrust

dow opening can be set up on several saw horses, and the metal unit slid into place. The whole unit is then placed in the wall opening.

H

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12

1434

# Stairways

Although stair framing and layout is a phase of construction confined largely to millwork manufacturing firms that employ professionals to help builders with these problems, the importance of good framing around the stair openings should never be underestimated by the designer or builder. Doubled and sometimes tripled joists with well-selected, properly fitted and adequately fastened headers are of utmost importance to achieve strength and rigidity. Joist hangers are particularly valuable around stair openings as double as-

(Continued on page 110)



FT. CAMPBELL, KENTUCKY. KENTUCKY. Wherry Housing Project, Southern Apartments, utilized thousands of Rusco Prime Windows.



SANTA ANA, CALIFORNIA. Rusco used on all Barkley Square and Sunshine Homes by builder Burt Huff.



QUINCY, MASSACHUSETTS. A. J. Spinelle, builder of Furnace Brook Acres homes, highly recommends Rusco.

On job after job, in every part of the country...

## the PRIME WINDOW

is making big savings in construction time, labor and materials!

### **4** BIG REASONS WHY...

- A COMPLETE, PRE-ASSEMBLED UNIT, FACTORY PAINTED. HARDWARE FITTED, READY TO INSTALL
- 2 CAN BE FULLY INSTALLED IN AS LITTLE AS 5 MINUTES



### All In One Unit

HERE ARE

GLASS . SCREEN BUILT-IN WEATHERSTRIPPING INSULATING SASH (Optional)

SURROUND (wood cosing metal casing or steel fins)



for convenience
in cleaning. The Rusco
removable sash feature has



1 Rusco Prime



2 . . . placed in stud opening and plumbed . . .





screen panels slipped into slides . . .



the fully-instal-led window is ready for service!



3 CONVENIENCE OF COMPLETELY REMOVABLE AND INTERCHANGEABLE GLASS AND SCREEN PANELS

NO COSTLY CALL BACKS FOR ADJUSTMENTS

## RUSCO HOT-DIPPED GALVANIZED

Made of Hot-Dipped Galvanized Steel, or Equal, Bonderized and finished with baked-on Outdoor Aluminum Ename! For additional information or specifications write or wire...

F. C. RUSSELL COMPANY, DEPT. 7, AB-42, CLEVELAND 1, OHIO



#### Heavy Duty Steel Swing Doors Styles and Sizes

5	MGLE DC	ORS	1	00	UBLE DOC	OR S	
DESIGN	TYPE	DOOR O		DESIGN	TYPE	9004 C	
	2868-G	2-6	6-6-		5468-G	5-4	68
	2870-G	2-8	7-0		5470-G	5-4	7-0
	3070-G	3-0,	7.0		60 70 -G	6-0"	7-0
	3870-G	38.	70"		7470-G	7-4	7-0
	2868-G2	2-6"	6-8		5468-G2	5-4	6-8
	2870-G2	2-8	7-0		5470-G2	5-4	7.0
	3070-62	1-0.	1-0		6070 62	0-0	7:0
	3870-G4	39.	7-0		1470-54	7-4	7-0
	4080-66	4-0"	8-0-		8080-66	8-0	8-0
围	50100-G8	20.	10 -0"		100100-68	10.0	10-6
	2868 M	2-8	6.8.		1468 M		6.8
	2870-M	3-0	7-0		5470-M		7 1
	36 70 - M	18	7-0		74 70 M		
	4080-M	4-0	8-0		8080-M		

Meskey Industrial Door Data

#### Wood Awning Windows Standard Styles and Sizes

21/2" 31/2"	2-48-18	2 72 18	6'-4%
	241	3.72.14	3 36 10 % L
\$ A 24-10		4.72 tš	4-14-16 1
3 24 10 5 39-14	344.1	5-72-19	5-36-18 L. te Window Data

surance that all members will be held to their original positions. Stair horses should be firmly secured against header of stair opening. In no case should they be hung

Because 40 to 60 per cent of home accidents are falls, with about one-third of them on stairs, safety principles are paramount in importance in building stairs. Hold (Continued on page 116)

## 500gallons

OF WATER A MINUTE GUARANTEES THE



ONLY ADLAKE ALUMINUM WINDOWS GIVE YOU ALL THESE "PLUS" FEATURES:

Woven-Pile Weather Stripping with Patented Serrated Guides

Minimum Air Infiltration

Finger-tip Control

.

No Painting or Maintenance

No Warp, Rot, Rattle, Stick, or Swell

**WEATHER-TIGHTNESS OF** 

## **Adlake**

### ALUMINUM WINDOWS

During the water test, which is only one of the rugged tests that ADLAKE Aluminum Windows must pass, 500 gallons per minute are played upon the window. This actually goes beyond the air infiltration test of the A.W.M.A. at the Pittsburgh Testing Laboratory.

ADLAKE'S exclusive combination of woven-pile weather stripping with patented serrated guides forms a perfect weather seal. What's more, tests prove that ADLAKE's famous finger-tip control continues through one million raisings—and the windows last through the entire life of the building!

Yes, the standards of ADLAKE Aluminum Windows are kept high by quality control and thorough testing. That's why the ADLAKE name is your best assurance of dependability, long-range economy, and lasting beauty. Get the full story on ADLAKE Windows today . . . ADLAKE Representatives are in most major cities.



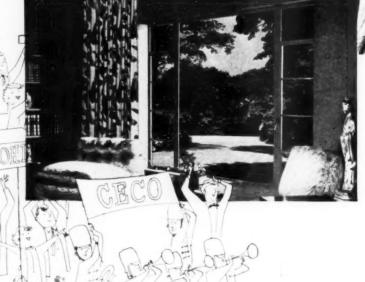
THE Adams & Westlake COMPANY



Established 1857 . ELKHART, INDIANA . New York . Chicago

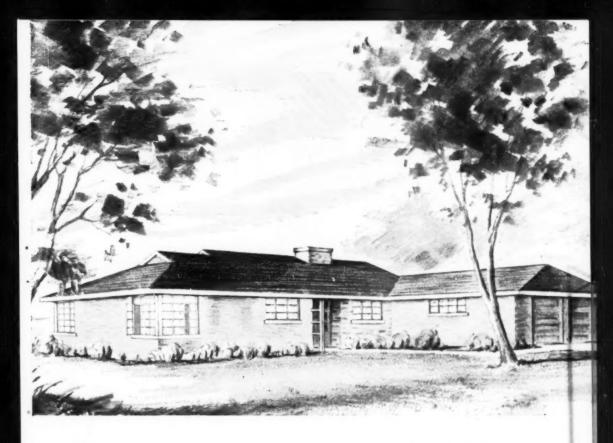
# The People's Choice! CECO metal WINDOWS

Ride the tide of public preference
-build with CECO and be sure



STEEL

In construction products CECO ENGINEERING



There's good reason for the swing to Ceco Metal Windows because they offer so much in so many ways.

Yes, home owners know the advantages. In recent studies they told us they prefer metal windows for ever so many reasons—such as beauty and design—better ventilation—ease of opening and closing because metal won't stick.

They told us metal windows are easier to maintain—easier to clean and wash—easier to change storm windows and screens—and of course they said they give more light than any other window opening.

There's the story of Ceco Windows written in customer preference. But there is even more to

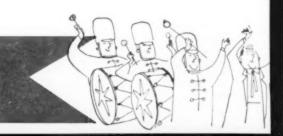
be said—for Ceco Windows blend harmoniously with every home design—accent the modern lines of Contemporary Architecture—emphasize the informality of the Ranch Style home—compliment the simplicity of Cape Cod Colonial.

Because they are better made—better engineered—they are stronger—last longer. When you build with Ceco Windows you know you build with the very best... you assure your customers savings too.

#### CECO STEEL PRODUCTS CORPORATION

General Offices: 5601 West 26th Street . Chicago 50, Illinois Offices, warehouses and fabricating plants in principal cities

makes the big difference





NEW
ALUMINUM
FRAMELESS
TENSION
SCREENS

Sealed Tight...
Held by tension.
Exclusive sill bor adjusts to off-level sills.

- 1. INCREASE SALES APPEAL of homes, apartments, motels. cottages, etc.
- 2. NEAT APPEARANCE . . . CONVENIENT
- 3. LOW COST-LONG LIFE
- 4. EASY TO INSTALL
- 5. EASY TO HANDLE
- 6. NO PAINTING—WON'T RUST OR STAIN
- 7. SEALS TIGHT

with exclusive free floating sill bar... assures snug fit at bottom... adjusts screen to uneven or off-level sill.

8. EXTRA STRONG VERTICAL EDGES

are 5-strand selvage, of special flat wire, to keep edges taut.

9. PATENTED TENSION CATCH

at sill holds Keystone Screen securely in place.

10. EASILY REPLACED

You can add a whale of a lot of sales-appeal to homes and apartments—at low cost—with Keystone Aluminum Tension Screens on all double-hung windows!

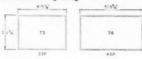
Saves 25 minutes per window in installation time. Easily installed—no heavy frames to cut or fit. No painting—no rust. A neat and attractive full-length, low-cost screen of outstanding long life!

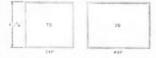
Users everywhere praise Keystone advantages! Send today for details!

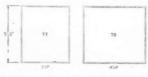


#### Steel Picture Windows Types and Sizes

for standard glaxing







Mark	W	н
73	51%	36%
74	67%	36%
75	5136	48%
26	67%	48%
77	51%	6114
78	67%	61%

Glass sizes are far guidance only and should be verified on the job.



Picture Window Combined with Casements

for insulating glazing





Mark	w	н
79	50%	47%
80	56%	47%
81	50%	601/4
8.2	00%	60%

Glass sizes are for guidance only and should be verified on the job.



Combining Picture Windows with Casements
Coco. Steel. Window. Data

## built up to a standard not down to a

There is no substitute for experience in establishing and maintaining quality.

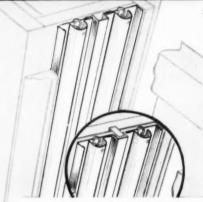
Over five million Paine Rezo doors are in use since 1935.

Manufactured by the

E LUMBER CO., LTD.

When Ordering Your Millwork insist on

BALANCE STRIP



Your double hung window assembly will be as modern as tomorrow if equipped with the Double Duty ALLWEATHER Balance Strip.

Double Duty because it provides dependable tongue and groove weatherstrip with maximum area of contact, plus positive coun-ter balance of sash. Lifting springs are con-cealed without the use of sleeves or covers.

Two types of parting bead are available. Illustrated is the Metal Hat Type Parting Bead which provides a completely metal covered sash runway. No wood parting bead

The inset view shows a Metal Parting Bead Cover to be used with conventional wood parting bead. Both eliminate the need for painting.

The ALLWEATHER Balance Strip is covered by U. S. Patents . . . Nos. 2,284,436-2,284,438 . . . other patents pending.



Weatherstrip Company

2243 N. Knox Ave., Chicago 39, III.

ALLMETAL WEATHERSTRIP CO. 2243 North Knox Avenue, Chicago 39, Illinois Please send complete information and prices. Name Address City\_ Zone\_

CROSS MEMBER WEATHERSTRIP INSTALLATION ALTERNATES

CROSS METAL EQUIPMENT "AC"







CROSS METAL FOUIPMENT "IR"







CROSS METAL EQUIPMENT "FH









WOOD STAIRWAY in harmony with architectural treatment of interior

#### Stairways . . .

(Continued from page 110)

risers to 634 to 7 inches and treads to 101/2 to 103/4 inches, slight variations being possible, but the sum of riser and tread should be about 171/2 inches. All treads should be the same width and risers the same height in any one flight of stairs. Angle of rise should be between 30 degrees and 36 degrees, and a secure railing should be installed 36 inches above the center of the treads.

Allow for adequate headroom. Minimum distance between nose of treads and soffit over stairway in a line parallel with the horses should be 6 feet 8 inches for main stairs and 6 feet 4 inches for basement and service stairs.

#### Metal Stairs

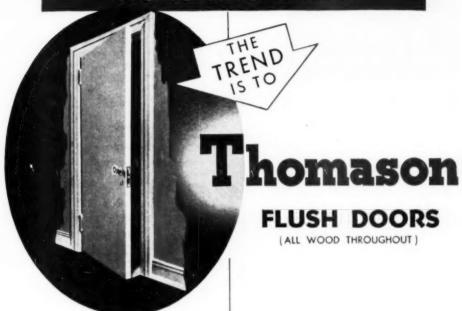
Metal stairs in light construction are useful for fire escapes, service stairs, and sometimes for main stairs in homes where design or decorative treatment permits. Stair stringers are usually made of steel channels, the weight of the load to be carried and that of the stair determining the size of the channel. For ornamentation an applied molding is secured to the top and bottom flange of the stringer.

Carriers, also known as horses or pitch blocks, are made of angles riveted to the stringers, Risers and undertreads are normally made of No. 14 or No. 12 USS gauge steel. Newels are normally square bent steel tubing with sanitary flush weld caps and drops, unless ornamentation is desired. Railings may carry almost unlimited ornamentation.

Metal stairs are also made in the form of permanent steel forms for concrete stairs, using only stringers and risers.

(Continued on page 120)

### MORE AND MORE



From coast to coast, architects are specifying and builders are using THOMASON Fush Doors. It requires practically the entire production facilities of one of the two large plants of the THOMASON PLYWOOD CORPORATION to meet the demand.

#### Available With These Face Veneers

In addition to the Gumwood faced door, the THOMASON Flush Door comes faced with veneers of Mahogany, Walnut, Oak, Birch, Knotty Pine, Cativo, or in any face veneer desired.

#### Also Made For Exterior Use

Available either plain or with any one of five standard patterns of light opening. Or you may have the THOMASON Flush Door with a solid all-wood core, faced with any type of veneer desired.

Sold Only Through Distributors

THOMASON
PLYWOOD CORPORATION
PAYETTEVILLE . HORTH CAROLINA

## NDOWS ALUMINUM OR WOOD

### ... Engineered

... and to help you SELL the homes you build, FASTER! Builders everywhere say AUTO-LOK Windows swing the sale with prospective buyers, especially women. AUTO-LOK Windows are so practical...they have so many advantages over ordinary windows...they add so much to appearance...it's no wonder they often make the difference when the competitive chips are down!

#### Tightest closing

AUTO-LOK Windows close 10 times tighter than ordinary windows...save enough on fuel bills to pay for themselves over and over again. Open widest...to catch every breeze and provide 100% ventilation, but no drafts. Perfect for any climate ...perfect for any type of architecture!

## ew homes aren't new without

#### No other window gives you all these outstanding features to pass on to home owners!



#### FRESH AIR WHILE IT'S PAINING ...

No more running to close windows...rain can't enter through slanting sash!

#### WARMER IN WINTER ...

Seals itself shut like the door of your refrigerator...keeps heat in...cold out!

#### COOLER IN SUMMER ...

Opens widest...scoops air inward and upward...luxurious ventilation, but no drafts!

Narraw horizontal lines add distinction to any home...lend themselves to a wider variety of architectural arrangements.

#### INTERCHANGEABLE SCREENS AND STORM SASH ...

Can be handled all from the inside. Just flip the clips...no tools required. Reduce a day's work to minutes!



#### ABSOLUTELY EASIEST TO CLEAN...

Nothing to lift out...no gadgets to disengage. Simply open wide and clean the outside from the inside...top sash, too!

### FRESH AIR NITE-VENT ...

Bottom sash opens slightly for night ventilation, while upper sash remain securely locked and weathertight...fresh air circulation during bad weather, too!

#### FINGER-TIP CONTROL ...



Operates at the touch of a finger! Perfectly balanced for a lifetime of frictionfree operation...No adjustments ever... never sticks...never rattles!

#### CONCEALED HARDWARE ...

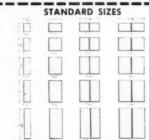
No unsafe, unsightly mechanism exposed to collect dust. Compact roto-type operator handle does not interfere with drapes, blinds, etc.

#### WONDER THEY'RE THE WINDOWS WOMEN WANT MOST!



Add extra "buy appeal" to every h you design or build with WINDO-TITE Jalousies and Doors. Turn porches and breezeways into beautiful, comfortable rooms. Specify WINDO-TITE Jalousies... absolutely no operational "bugs"...made by the world's largest manufacturer of Awning Windows and Jalousies!

Sizes shown with asterisk are standard and normally carried in stock. Others are standard but not stocked.



WINDOW DIMENSIONS SHOWN ARE OVERALL (outside of flange to outside of flange)

Additional standard sizes may be ordered by specifying one half of either G-32 or G-42 widths in any standard height. Designation-G1-32 etc. (width 2'2%"0; G1-42 etc. (width 2'10%")

LUDMAN

### YOU BUILD Better, Brighter HOMES!



AUTO-LOK Wood Windows cost no more than a good grade of ordinary, old-fashioned windows... yet, you can't install a better window at any price! Delivered to the job completely assembled. No parts to lose! No hardware to install!

## Auto-lok

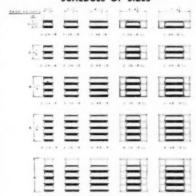
ALUMINUM WINDOV Successfully combines

the best features of all window types!



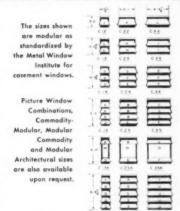
Designed and produced by men who know windows and window problems. In both AUTO-LOK Aluminum and Wood Windows, the secret of wide acceptance is the patented AUTO-LOK Hardware...plus "floating seal" weatherstripping. Perfectly balanced operating mechanism eliminates wear and strain on every moving part, assures "no-wear" operational ease for the life of the building.

#### SCHEDULE OF SIZES



All sizes (dimensions) shown are buck to buck dimensions. To determine overall window sizes add 1" to each dimension. Fixed sidelights are separate right and left hand and may be ordered in pairs or singly.

#### STANDARD COMMODITY TYPES AND SIZES



SIZES ARE OVERALL FROM OUTSIDE OF FLANGE TO OUTSIDE OF FLANGE

SEE YOUR LOCAL DEALER ... or WRITE TODAY FOR THE

NAME OF THE DEALER, NEAREST TO YOU,

WHO HANDLES AUTO-LOK WINDOWS! Specify the AUTO-LOK

Window you are interested in...Aluminum or Wood?

LUDMAN Corporation

BOX 4541, DEPT. AB4, MIAMI, FLORIDA

SALES OFFICES: NEW YORK . WASHINGTON, D. C. . ST. LOUIS . SAN FRANCISCO . BOSTON . CHICAGO . ATLANTA . HOUSTON

IN WINDOW ENGINEERING

### here's SELL "YEAH?" "You bet! I'm putting Master No-Draft Sash Balances like this in every window. They give the windows smooth metal tracks to run on, and their counter-balancing springs make windows easy to raise and lower. Think what a selling point this gives me, Joe: windows that always work right . . . windows with no ropes to break, no pulleys to rust. But that isn't all! These Master No-Draft Sash Balances weatherstrip the windows, too. That means they keep out dust, dirt, wind and water . . . and that means they keep out uses, they was all a was cold, besides. What's more, they cost less to install, because they don't need pulleys, cords, weights or box-frames. And MAN... you ought to see how easy they are to put in!" MASTER NO-DRAFT SASH BALANCES ARE PRE-CISION-MADE of the finest, highly-tempered non-corrosive metal. They can't rust. Springs are correctly-tensioned to give perfect balance of the upper and lower sash . . . and easy, fingertip operation. These sash balances are made in a factory that's recognized by the industry as outstanding for its efficiency and the craftsmanship of its workers. SMOOTH OPERATION IS ASSURED by Master No-Draft Sash Balances, because they automatically adjust for shrinkage and expansion in the wood. Runways are completely metal-covered and require no painting. (Of course, cross-members should be installed). Double contact prevents rattle when windows are open. USED BY THE U.S. GOVERN-MENT AND PROMINENT Master No-Draf BUILDERS all over the country, Master No-Draft Sash Balances are Balance is th tested to mechanical perfection. They make windows neat and weathertight. and there's nothing to cause trouble. You can forget maintenance! See Our Catalog in Sweet's Fa MASTER METAL STRIP SERVICE, INC. 1720 N. Kilbourn Avenue, Chicago 39, Illinois

Plagse send me, without abligation, complete information about Master No-Draft Sash Bala

#### Disappearing Stairs

A number of manufacturers fabricate disappearing stair units which are designed for use with attics without taking up the space normally required for a finished stairwell. No vertical or horizontal clearances are required in the attic or loft; all that is needed is to cut a rough opening and install the unit. Some models



DISAPPEARING STAIR in storage room makes ample space in attic available without wasting floor space

move by counterweights, some are of one-piece construction on the stringer, others have a semi-extensible feature to save more space. Safety treads, an insulated ceilingdoor panel, and rigid construction are features of several models.

#### Weather Stripping

The problem of making door frames and window frames weathertight has brought about the development of a wide variety of weather stripping materials.

Perhaps the most popular types today are of metal construction, some being merely weather strip, some containing the sash-balance unit, others being incorporated into spring tension windows which work without balances or counterweights.

For existing windows there are also a variety of types of stripping which are designed to prevent drafts and unnecessary heat loss.

The Weatherstrip Research Institute is constantly working with builders and architects to make this type of weather protection more effective.



A beautiful large picture window (approximately 4 feet wide by 4 feet high) with full height ventilators on both ends (approximately 11/2 feet wide by 4 feet high)—all built in one shop fabricated unit. With all this extra light and fresh air, you also gain approximately 11/2 feet wider wall space for furniture arrangement than is provided by the ordinary picture window unit.

Here are a few of the many other reasons why COPCO'S Economy Living Room Window Unit is a truly sensational value:

EASY OPENING. COPCO'S Living Room Window glides open and shut with fingertip ease . . . especially desirable for that "hard-to-reach" area over the davenport.

BETTER CONTROLLED VENTILATION. COPCO'S "Air-Deflector" ventilator catches breezes from three directions. Flow of air easily controlled.

EASIER CLEANING. COPCO'S extension type hinge permits safe, easy cleaning of both sides of the glass from inside the room.

LIFETIME SCREENS. COPCO metal frame screens on inside of window are protected from weather . . . do not interfere with curtains or blinds . . . and can be put up or removed from inside the room-safely, quickly, easily.

QUALITY CONSTRUCTION. Made of specially designed, hot-rolled solid steel sections with welded construction . . . Duranized and finished with baked-on coat of rust-resistant paint . . . the same high quality as all other COPCO residence casement windows.

**FULL INFORMATION TODAY!** 

Copco's complete line of residence casements offers builders the most satisfactory window units for every room in the home. Get complete information from your local retailer of lumber and building materials . . . or mail coupon below.





















ADDRESS



COPCO STEEL & ENGINEERING COMPANY

Metal Building Products Divisio 14306 Grand River Avenue Detroit 27, Michigan



ZONE



STATE



BASEMENT

Without obligation, please send me additional information regarding the complete line of Copco Residential Metal Building Products.

## now



another important addition to

**Curtis Woodwork** 

# CURTIS NEW LONDONER HOLLOW-CORE FLUSH DOORS

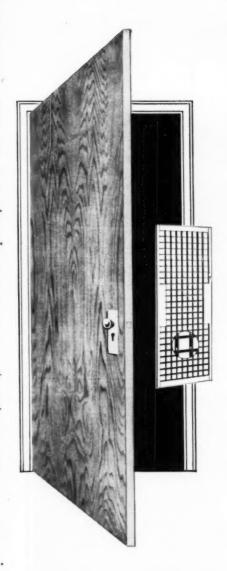
Once again Curtis enlarges its manufacturing facilities to provide a complete woodwork service to builders! Through the purchase of American Plywood Corporation, New London, Wisconsin, Curtis can now supply top-quality flush doors—the Curtis New Londoner—Curtis Plyoneer—and Curtis American solid-core door.

From every angle—beauty, fine craftsmanship, durability—Curtis New Londoner hollow-core flush doors match the high standard set for over 85 years by the popular Curtis panel doors. With these two types, Curtis today can meet your every need and taste in exterior and interior doors for homes, schools, public and industrial buildings.

The addition of the famous Curtis New Londoner all-wood flush doors to the Curtis line is further evidence that Curtis Woodwork products are always in step with current architectural trends and tastes. Those products include such famous ones as Curtis Silentite windows, a complete line of kitchen cabinets and a line of architectural woodwork which has won widespread praise from architects, builders and home owners alike.

Full information on Curtis New Londoner flush doors, Silentite windows and other Curtis Woodwork will be sent you on request.





#### Curtis American Solid-Core Flush Doors

The same inherent quality found in Curtis New Londoner hollow-core doors is available in Curtis American solid-core flush doors. These doors have a kiln dried core and are edged with hardwood strips all around. Face panels are phenolic bonded. Available in extra widths for school, hospital and institutional use.



## What's BETTER About Curtis New Londoner <u>All-Wood</u> Hollow-Core Flush Doors...

Superior beauty—just as in the finest furniture, the wood grain figures of Curtis New Londoner flush doors are matched carefully to provide balanced, harmonized patterns. Doors are sanded with fine sandpaper for quick, easy finishing. Available in birch, maple, oak, and other woods.

Patented locked wood grid—made of precision milled, meshed and interlocked horizontal and vertical pine strips. Grid is firmly "welded" to both faces—no "floating" units.

Specially bonded faces—water-resistant bonds which stay tight under high humidity conditions. Bonding for exterior doors fully waterproofed.

A door that stays true—all Curtis New Londoner flush doors are kiln dried—then sealed against atmospheric changes. All interior structural strain is eliminated.

Sturdiness proved in over 4,000,000 installations—established reputation for quality with architects, builders and home owners.

Several choices of light openings are available.

Extremely easy to hang and finish—a popular feature with carpenters.

Both ends of doors branded with Curtis New Londoner name for easy identification.

#### **Curtis Plyoneer Hollow-Core Flush Doors**

These Curtis doors have the same high quality construction as the Curtis New Londoner hollow-core door, except that faces are not matched-grain.

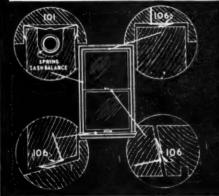


#### 

**HETTINGER'S** 



COMBINATION SASH BALANCES and METAL WEATHERSTRIPPING



### NOW! ORDER

WHITE METAL TRIPLE SEAL

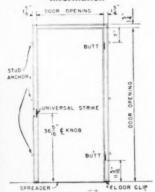
AVAILABLE AT YOUR LOCAL LUMBER DEALER. YOU'LL LIKE IT!

### THE WEATHERPROOF PRODUCTS CORPORATION

Waldo Station, P. O. Box 8498

Kansas City 5, Mo.

#### Steel Door Frame Information



Typical Elevation

STAR	DARD DOOR	OPENING SI	ZES
Width		Height	
1'-2"	6'-61%"	6'-8-4"	
1'-6"	**	**	1
1".0"	"	**	1
1'-10"	45	* "	1
*2'-0"	**	**	
2'-4"	11.	**	
*2'.6"	**	84	7'-04"
*2"-8"	**	**	"
2'-10"	76		"
*3'-0"	и.		**

Thorn Data

#### The Name HOPE'S What Everybody Guarantees Wants



who plans to build or bar a

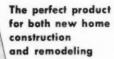
advantages of HOPE'S STLEL WINDOWS ... true, storm smooth operation of the venrilator casements.

are well within the means of your customers not only be cause of their lower upkcep; their first cost is also compet itive. Test this in your own estimating. Write for Catalog No. 102N, and prices.

HOPE'S WINDOWS, INC., Jamestown, N.Y. THE FINEST BUILDINGS THROUGHOUT THE WORLD ARE FITTED WITH HOPE'S WINDOWS

## **AMWELD**° "K-D"Steel Sliding **Closet Door Units**

OFFER what every builder and home owner wants...



Header, Jambs, Track, Panels and Hardware COMPLETE in one package



A Complete Quality Product

LOW COST!



Savings in Installation and Maintenance Costs!

DEALERS: Ask us to send you complete information on how to become an AMWELD dealer.

BUILDERS: We will be glad to send you detailed prints and name of your nearest dealer.

ARCHITECTS: May we send you our new 1952 AIA File giving complete specifications?

#### Also Available

The complete AMWELD line of Interior Steel Doors—Frames—Assembled Sliding Closet Door Units and Labelled Fire Doors.

Sliding Closet Doors permit use of all this space PLUS wall space and full access

to closet contents.



BUILDING PRODUCTS DIVISION

THE AMERICAN WELDING & MANUFACTURING CO. • 310 DIETZ ROAD • WARREN, OHIO

LOOK

at all the space you save

... from 6 to 9 square feet of floor space (shaded area) required for swing door. A M W E L D



### LOW-COST METHODS MAKE THIS PRACTICAL

The appeal of picture windows has been tremendous—even more powerful when glazed with Thermopane\* insulating glass.

Now builders are taking the popularity of Thermopane and really putting it to work. They're offering Thermopane in every window of the house—in moderately priced houses.

Builders are doing it by using standard sizes of *Thermopane* in standard types and sizes of sash. They are simplifying glazing by cutting down on the number of glass sizes used. Some are using *only two sizes* for the entire house. Many are using economical *Thermopane* made of DSA window glass for all windows other than picture windows.

The information on the right-hand page is provided to help you fit the appeal of *Thermopane* into your plans. Picture window sizes are made in ¼" plate glass, while *Thermopane* for other sash is made in both ¼" plate and DSA window glass—giving you a choice according to budget demands.

Give your houses the extra appeal of *Thermo*pane all around. Promote it—and watch prospects go for it.

See your L·O·F Distributor for information on promotional material, and for detailed information on low-cost methods of installing *Thermopane*. Or write us. Libbey Owens Ford Glass Company, 342 Nicholas Bldg., Toledo 3, O.



#### 1" Thick Units

### Standard Sizes of Thermopane 1/2" Thick Units

(2 Pones !	" Polished Plate Wit	h 1/2" Air Space)		(2 Panes 34" Polished P	late, or DSA Windo	w Glass, With 1/4"	Air Space)
Sash Manufacturer	Window Style	Sash Opening	Glass Size Width Height	Sash Manufacturer	Window Style	Sash Opening Width Height	Glass Size Width Height
Any monofocturer - thown below con provide picture window solth eve flonking units.  Nitrodaiv wells con be constructed by	Picture Window Alane Window Wall	Glass sizes shown are for 8 and 8/1/2	Use any size shown in this golumn.  42" x 66" 550's x 66" 64's' x 66" 72's' x 66" 84" x 66" 84" x 66"	Chicago & Riverdale Lbr. Co. Chicago, III. Spokane, Wash. Harris Bras. Lbr. Co. Chicago, Lbr. Co. Chicago, Lbr. Co. Chicago, Lbr. Co. Chicago, Br. Co. Chicago, III.	Double Hung Wood Windows [2-light]	2'-0" x 4'-2" 2'-4" x 4'-2" 2'-4" x 4'-6" 2'-6" x 4'-6" 3'-0" x 4'-6" 3'-0" x 4'-6" 3'-4" x 4'-6" 2'-4" x 5'-2" 2'-8" x 5'-2" 3'-4" x 5'-2" 3'-4" x 5'-2" 3'-4" x 5'-2" 4'-0" x 5'-2" 3'-4" x 5'-2"	20" x 22" 24" x 22" 24" x 24" 26" x 24" 30" x 24" 30" x 24" 44" x 24" 20" x 24" 30" x 24" 44" x 28"
using a series of Picture Window gash separated by multions.		ceiling heights re- spectively, allowing 1'-6" from floor to still and 1'-0" from head to ceiling	72½" x 66" 84" x 66" 96" x 66" 42" x 72" 84" x 72" 96" x 72"	Chicago & Bivordale Lbr. Co., Chicago, III.	Double Hung Wood Windows (4-Light)	2'-0" x 4'-2" 2'-4" x 4'-2" 2'-4" x 4'-6" 2'-8" x 4'-6" 3'-0" x 4'-6"	20" x 10%" 24" x 10%" 24" x 11%" 28" x 11%"
Anderson Core.  Mayport, Minn. All sizes carcept " and 2  Fariey & Loetschor Mfg. Ch.	Standard Wood Ficture Window Units with Flanking Casements	(Including Casements) 6'-514' x 3'-2'14' 9'-814'' x 3'-2'14'' 9'-814'' x 3'-2'14'' 6'-514'' x 4'-2'16'' 8'-1'' x 4'-2'16'' 9'-814'' x 4'-2'16'' 6'-514'' x 4'-2'16'' 8'-1'' x 5'-2'16'' 8'-1'' x 5'-2'16''	35/4" x 34" 55/4" x 30" 75" x 30" 35/4" x 48/4" 55/4" x 48/4" 35/5" x 60/4" 75" x 60/4" 75" x 60/4" 75" x 60/4" 75" x 60/4" 75" x 60/4" 75" x 60 %	Chicago & Riverdale Lie. Co. Chicago, III. Exchange Lier & Mrg Co. Spokkare, Wash. Chicago, III. Ed. Hines Lie. Co. Chicago E. III.	# As	2' 0" " 4' 2" 2' 4" " 4' 0" 2' 4" " 4' 0" 2' 8" " 4' 0" 3' 0" " 4' 0" 3' 4" " 4' 0" 3' 4" " 5' 2" 3' 4" " 5' 2" 4' 0" " 5' 2" 4' 0" " 5' 2"	36" a 11 %" 36" a 11 %" 40" a 11 %" 44" a 13 %" 24" a 13 %" 32" a 13 %" 32" a 13 %" 40" a 13 %" 44" a 13 %"
Dubuque, towa private		6-5% x 5-2% x 5-2% 6 9'.8% x 5-10" 25'-8" x 5'-10" 25'-8" x 5'-10" 25'-8" x 5'-10" 25'-4" x 5'-10"	55\6' x 60\6'' 75' x 60\6'' 48' x 48'' 72' x 48'' 72' x 60'' 72'' x 66'' 172\6'' x 66'' 172\6'' x 66''	Robertson Co. Polis, Iowa	Wood	23° a 40° 23° a 52° 23° a 64° 27° a 28° 27° a 36° 27° a 52°	20" x 36" 20" x 48" 20" x 60" 24" x 24" 24" x 32" 24" a 36" 24" a 48"
Anderson Cern. Baypert, Whon. Anderson Mig. Cn., Sns. Overshore, Nr. Cn., Inc. Richmond 21, Va. Richmond 21, Va. Richmond 21, Va. Richmond 20, Va. Richmond 20, Va. Richmond 20, Va. Control & Co. Vinc. Caneron & Co. Vinc. Caneron & Co. Colingo, Ill. Colingo, Ill. Colingo, Ill. Colingo, Ill. Colingo, Ill. Companies, Inc. Clinton, Companies, Inc.	Sendord Wood Picture Window Units with Flenking Double Hung Sosh  (Continued from Continued from	4°-4° 8 4°-2° 5'-0° 8 4'-2° 5'-8° 8 4'-2° 6'-4° 8 4'-2° 4'-4° 8 4'-6° 5'-0° 8 4'-6° 5'-6° 8 4'-6° 6'-4° 8 4'-6°	48½" = 464 48½" = 465 64½" = 465 72½" = 50° 56½" = 50° 64½" = 50° 80½" = 50° 80½" = 50° 48½" = 50° 80½" = 50° 48½" = 50° 80½" = 50° 48½" = 58° 80½" = 58°	Biles Sheel Products Co. E. Syracose, N. Y. Draschit, Ion. Michael Flynn, Mig. Co. Philadelphia, Pa. Hopen Vindeus, Ind. Senis Steel Co. Los Angeles, Cal. Youngstown, O. Youngstown, O.	Residential Street Cosmonts	For detailed information about omitting immunities summand only LO-F diletrict office	F.115'ba" a 35'ba" F.215' 76" a 36'ba" F.215'ba" a 47'y' F.415'ba" a 48 74' F.617 7a" a 48 74'
Clinton, Jowa Exchange Lumbor & Mfg. Co. Spokane, Wash. Farley & Loutscher Mfg. Co. Dubbase, Jowa Marris Bros. Lbr. Ca. Chicage, Ill. (Continued next column)	column at left)  Edward Hines Lbr. Co. Chicago, III. Plettis Mig. Co. Muscatine, Ia. Muttla Sash & Door C. Muscatine, Ia. Matta Ohio Roach & Musser Co. Muscatine, Ia. Moch island Millioork Took Island Millioork Took Island Millioork Washer Co. Matta Ohio Roach & Musser Co. Muscatine, Ia. Moch Island Millioork Took Island  Millioorh  Matta Ohio Rarberton, Ohio	8'-4" x 5' 2" 10'-0" x 5'-2" 5'-0" x 5'-10" 5'-8" x 5'-10" 6'-4" x 5'-10"	721/1" x 58" 801/2" x 58" 961/2" x 58" 1161/2" x 56" 561/2" x 66" 41/2" x 66" 721/1" x 66"	Fabrow Mfg., Sec. Toledo 9. Onio (Wood) Fired Reuten, Inc. Ctoster, N. J. (Wood) (Vontilator Sections) (Aluminum)	Panel Window System	45¼" a 25¾"	45%" * 25%"
Atuminum Window Corp. Garden City, L. I. Note: First 3 sizes in this group also available in wood ash.	Aluminum Sash Picture Window Units	4'-0" x 4'-8" 5'-0" x 4'-8" 6'-0" x 4'-8" 4'-0" x 5'-0" 5'-0" x 5'-0"	461/4" x 521/4" 581/4" x 521/4" 701/4" x 521/4" 461/4" x 561/4" 581/4" x 561/4" 701/4" x 561/4"	(Aluminum) A. B. C. Steel Equipment Co. New York 10, N. Y. (Winosi) Fabrow Mfg., Inc. Totodo 9, Obio	Vertilator for Above	45%**25%*	42½* a 22½*
Adams & Westisks* Eikharf, Ind Cupples Products Co. Maphemed, St. Louis, Ma. Gancral Branze Corg.* Garden City, L. I. Starting Windows, Inc. Indicates These Firms Man- ufacture to Order	Standard Aluminum Picture Window Units with Flanking Double Hung Sash	3'-2" x 4'-2" 4'-4" x 4'-6" 5'-0" x 4'-6" 5'-8" x 4'-6" 7'-0" x 4'-6" 7'-0" x 4'-6" 3'-8" x 5'-2" 6'-4" x 5'-2" 7'-0" x 5'-2"	35½ " a 48½ " 48½ " a 50 " 56½ " a 50 " 64½ " a 50 " 80½ " a 50 " 64½ " a 50 " 64½ " a 58 " 72½ " a 58 " 80½ " a 58 "	Bolar Air-Flo, Inc. Eikhart, Ind.	Ponel Woll with Sources	49%"=104"	4514°12514°
	Steel Sash Picture Window Units	5'-8" x 5'-2" 6'-4" x 5'-2" 7'-9" x 5'-2"	64½ x 58° 72½ x 58° 80½ x 58°	Note Same representative are listed on this page of manufacturers and a sizes made by each of	This listing does a tyles, not does it	not purport to be necessarily inclu	a complete listing
Springfield, Ohio Bliss Steel Products Co. E. Syracuso, N. V.				STAND4	AD SIZES FOR FARM	SERVICE BUILDING	1
Wm. Bayley Co. Springford. Ohio Springford. Ohio Springford. Ohio E. Syracus. N. V. Care Steel Products Co. Detroit Steel Products Co. Detroit, Mich. Michael Fynn Mig. Co. Detroit, Mich. Michael Fynn Mig. Co. Hopper' Windows. Inc., Jamestown. N. V. Michael Springford. Ohio Constructed saxt cellusian) (Continued saxt cellusian)	(Continued from column at left) §. S. Thern Co. Phila Pa. Truscon Siese Co. Youngstown, Ohio	4'-5'/6" ¤ 4'-2'/6 4'-5'/6" ¤ 5-3 5'-9'/6" ¤ 4'-2'/6 5'-9'/6" ¤ 5'-3	50% x 47% 50% x 60% 66% x 47% 66% x 47% 66% x 60%	These ½"-thick. Thermopene units for form buildings are made with ½" sheet glass and ½" oir space only. They are steedled for use in form buildings.			1/2" Air Space and 1/4" Sheet Glass only 36" x 44" 36" x 60" 40" x 68"
Sider Air-Flo. Inc. Eikhart, Ind.	Standard Wood Picture Window Units with Louvres (3)	39% "153%" 39% "165%" 39% "177%" 49% "165%" 49% "174%" 49% "189%"	35½",136" 35½",146½" 35½",160½" 46",148½" 46½",156½" 46%,156½"	These ½"-thick units for form buildings are made with dou- ble strength A-quality window glass and ½" air space.		Studs 24" on cr for for fixed w dows with stu- nacied to studs	in- only
Thermopane made wi specify width first. A				Steel sash manufactured by Clay Equipment Corp., Cedar		32" x 36"	311/4" = 351/4"
can be installed withings will vary accord. Therefore, manufacture their units.	th either dimensioning to individual s	n set vertically.	Window open	Folls, lows. Thermopone units 1/2"-thick mode only with		32° x 34°	30 1/4" = 22" (Top) Tilting 31 1/2" = 11 1/4" (Bottom) Fixed

LIBBEY-OWENS-FORD GLASS COMPANY Toledo, Ohio



### Beauty...Lower Cost...More Room Space



### WITH RA-TOX FOLDING DOORS

Here's an ideal solution to three of the biggest problems in home design and construction. Wherever Ra-Tox Folding Doors have been used, they have won immediate approval of the home buyer. Today Ra-Tox Folding Doors offer the builder and architect a proved and practical means of achieving:

### Beauty ...

a refreshingly new approach to room design. Used as an interior door, or room divider, the effect is unique and delightful. In natural wood finish, Ra-Tox Doors blend with any room design. And they're also supplied in a variety of colors to match any color scheme.

#### Lower Cost ...

achieved because (1) Ra-Tox Folding Doors are supplied to you complete with all hanging hardware and finished as specified, (2) installation requires only the mounting of an overhead track plus attachment of anchor molding and (3) much costly wall construction is eliminated since the door can be hung from ceiling to floor and from wall to wall.

### More Room Space . . .

Ra-Tox Doors open by folding to one side. All the wall and floor area wasted by swing type doors is available for use...an important factor in today's new homes, where room areas often are relatively small.

For new construction and for remodeling, Ra-Tox Folding Doors offer distinct opportunities for better design and lower cost. For complete information write for Bulletin 306... or refer to Sweet's File, Architectural, 1952 Edition, Section 16:410.

#### THE HOUGH SHADE CORPORATION

Ra-Tox Division

JANESVILLE, WISCONSIN





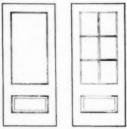


WARDROBE DOORS

BETWEEN ROOM DOORS

ROOM DIVIDERS

#### Popular Patterns For Exterior Doors

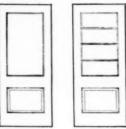


N.D. 507

N.D. 508

Above 1 light design N.D. 507 can be divided as in Design N.D. 508 or other divisions are available as listed below:

N.D. 509— 9 lts., 3 w. N.D. 510— 8 lts., 2 w. N.D. 511— 9 marg. lts. N.D. 512—12 lts., 3 w.

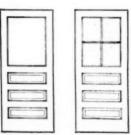


N.D. 500

N.D. 506

Above 1 light design N.D. 500 can be divided as in Design N.D. 506 or other divisions are available as listed below:

N.D. 501— 6 lts., 2 w. N.D. 502— 9 lts., 3 w. N.D. 505—12 lts., 3 w.



N.D. 537

N.D. 538

Above 1 light design N.D. 537 can be divided as in Design N.D. 538 or other divisions are available as

listed below:

N.D. 536—3 hor. lts. N.D. 539—6 lts., 3 w. N.D. 542—3 vert. lts.

### Look to





 $\overset{ ext{for}}{ ext{OORS}}$ 



### QUALITY WOOD PRODUCTS

LB 103

> From Long-Bell Douglas Fir and Ponderosa Pine factories—quality Frames, Industrial Cut Stock, Sash and Doors, Glazed Sash, Box Shook... Kitchen Cabinets ... Unpainted Furniture... Prefabricated Building Stock... varied Products.

#### OAK FLOORING

PONDEROSA PINE and DOUGLAS FIR PLYWOOD

HEMLOCK ... CEDAR ... WHITE FIR SOUTHERN PINE and HARDWOODS

#### TREATED PRODUCTS

...Woods treated with creosote and standard salt preservatives, from Long-Bell Wood Preserving Plants.

### Now Long-Bell Brings You TWO BEAUTIFUL NEW DESIGNS

IN PONDEROSA PINE

That will add EXTRA SALES APPEAL to New Homes

You'll find home sales are easier and faster when you give your customers the distinctive beauty and character of Long-Bell Doors. These two new interior designs in Ponderosa Pine will enhance the personality and appeal of any room—in any type of house. They are as much at home in a cozy Cape Cod cottage as in the rambling Ranch style house.

Long-Bell Doors of Ponderosa Pine or Douglas Fir are expertly made for easy, time-saving hanging. Quality materials and precision manufacture give you a door that lasts a lifetime.

Use Long-Bell Doors to add extra sales appeal to your homes. There are designs and sizes—distributed through millwork jobbers—to meet every need.

### The Long-Bell Lumber Company

Established 1875 - Kansas City 6, Mo.

**DIVISIONAL SALES OFFICES** 

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WESTERN DIVISION . LONGVIEW, WASH.



Yes, only ten minutes or less are required to install a BILCO DOOR when you are ready to pour the capping or sidewalls. BILCOS also save countless man-hours during construction by giving free access to the basement.

And remember the advantages to your customer!
Only BILCO CELLADOORS give the real basement efficiency that Homeowners want.

It's a lifetime investment—economical, trouble-free, burglar and fire-proof.

Write to The Bilco Co., 118 Hallock Ave., New Haven, Conn., for construction facts and the name of your nearest dealer.

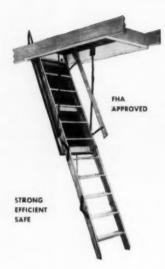


#### HERE'S

A

SPACE

SAVER



#### DISAPPEARING STAIRWAY

When drawing up plans for homes, utilize the wasted attic space which can be used as storage space, a play-room or an extra bedroom by specifying a Wel-Bilt FoldAway Disappearing Attic Stair. It can be folded up in the ceiling when not in use; thus utilizing valuable space in the house that a permanent stair would occupy. Wel-Bilt FoldAway Stairs can be installed in bedrooms, in kitchens and in small homes at a very nominal cost.

Ask your lumber dealer or write to:

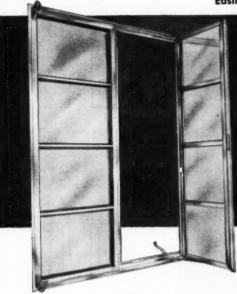
#### WEL-BILT PRODUCTS COMPANY

P. O. Box 95

Memphis, Tennessee

## Raising higher the recognized superiority of Aluminum Windows...

Rustproof • No Painting • Non-Staining
Easily Installed • Trouble-Free • Permanently Beautifull



### REYNOLDS ALUMINUM RESIDENTIAL WINDOWS

#### CASEMENT, FIXED AND PICTURE WINDOWS

with welded joints for greater strength and weather-tightness...carefully assembled from Reynolds own extruded shapes...outstanding for high satin finish. Protectively packaged two to a carton. Complete accessories include Storm Sash and Screens.

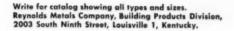
#### DOUBLE-HUNG WINDOWS

Extra-heavy depth... stainless steel hardware ... extruded aluminum trim...fully weather-stripped. Spiral precision balances (tape balances optional at extra cost). Supplied unglazed or factory-glazed with neoprene. Shipped ready to install.



### AWNING

Featuring cross-lap weatherstripping in the tightest, smoothest operating version of this popular window type. Roto-operator opens bottom vent first. Fullopen vents deflect both drafts and rain,





Military needs for aluminum limit supply, but Reynolds is rapidly expanding primary capacity. Check your supplier.



REYNOLDS ALUMINUM

APRIL 1952

13

### Look what you can do WITH PATTERNED GLASS WALLS





FOR THE DINING ROOM—Satinol® Doublex Glass makes a striking background for art objects. At night, illumination behind the translucent wall floods the room with softly diffused light.

FOR THE ENTRANCE HALL—people get a grand first impression from this interesting pattern of transmitted light, day or night.

FOR THE STAIRWAY—walls become interesting, instead of long, dull surfaces. Daylight from adjoining rooms streams through to flood the stairs.

This idea may suggest ways you can use Blue Ridge Patterned Glass to put more beauty, more sparkle, more livability into houses. It's a use of glass that wins admiration from home buyers. Blue Ridge offers you many beautiful patterned glasses—linear, checkered and over-all patterns, in plain, Satinol and textured finishes. Your L-O-F Distributor can show you samples.

WANT DETAIL DRAWINGS OF THESE PANELS? Send for working drawings showing dimensions, framing methods and other pertinent data. Also ask for our 16-page illustrated book of ideas for sparking up homes with patterned glass. Mail the coupon.

	_
Libbey-Owens-Ford Glass Co.	4
Patterned & Wire Glass Sales B-142 Nicholas Bldg., Toledo 3, Ohio	
Please send me detail drawings and your illustrated idea b	ool

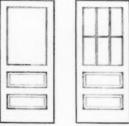
Name (p	lease	print).	 	 	 	 	 	 		 		 	 	 	 	 	 	

Street			
	_	-	



#### **Exterior Doors...**

(Continued from page 128)

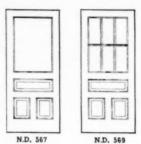


N.D. 514

N.D. 516

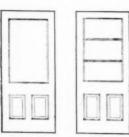
Above 1 light design N.D. 514 can be divided as in Design N.D. 516 or other divisions are available as listed below:

N.D. 513— 3 hor. Its. N.D. 515— 4 Its., 2 w. N.D. 517— 9 Its., 3 w. N.D. 519— 3 vert. Its.



Above 1 light design N.D. 567 can be divided as in Design N.D. 569 or other divisions are available as listed below:

N.D. 570-9 lts., 3 w.



N.D. 559 N.D. 563

Above 1 light design N.D. 559 can be divided as in Design N.D. 563 or other divisions are available as listed below:

N.D. 560-4 lts., 2 w. N.D. 561-6 lts., 2 w. N.D. 562-9 lts., 3 w.

Decorating".



easy clamps grip screen to win-

dow frame. All in just 9 seconds! SAVE SPACE! To store Durolls nanap, roll up, slip into handy cartons, store in neurest class?

SAVE TROUBLE! Duralls make window washing a snap. Relegse two clamps and Durall

Duralls weigh just ounces!

to reach outside.

SAVE WORK! Duralls never need painting or weatherproofing They're rugged and durable. They never rust or stain your

SAVE MONEY! Duralls de more, cost less, last longer than ordinary, old-fashioned screens. Write for our Catalog AIA-35-P-1.



NEW YORK WIRE CLOTH COMPANY, New Canaan, Conn.

### PRECISION

the only attic stairway equipped with ROLLER BEARINGS



Precision Parts Corporation, not content with the smoothest and easiest operating stairway on the market, equipped their Precision Folding Stairway with roller bearings for still smoother and easier operation. Actuated by counterweights which operate on these bearings the stairway is practically 100% free of friction and all but raises and lowers itself.

#### OTHER OUTSTANDING FEATURES:

Constructed of No. I kiln dried poplar. Heavy cast aluminum alloy brackets, rocker arms and hinges. Composition safety treads on steps. Door panel insulated with Cellufoam. Requires no attic space. Approved by F.H.A. everywhere.

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NASHVILLE 7. TENNESSEE



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### SPOT SASH CORD

For years, builders and architects have used and specified Spot Sash Cord for hanging windows because they have come to know it as "the most durable sash cord on the market."

- TOUGH
   SOLID
   BRAIDED
   COTTON
- WEAR'
   RESISTANT
- PLIABLE
   FOR EASY
   INSTALLATION

Look for the colored spots . . . your guarantee of quality. In new installations and replacements, use and recommend Spot Sash Cord.



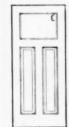
CORDAGE WORKS

Boston 10, Massachusetts

#### Exterior Doors . . .

(Continued from page 132)





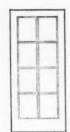
N.D. 594

N.D. 591

Above 1 light design N.D. 591 can be divided as in Design N.D. 594 or other divisions are available as listed below:

> N.D. 592-3 vert. lts. N.D. 593-4 vert. lts.





N.D. 620

N.D. 622

Above i light design N.D. 620 can be divided as in Design N.D. 622 or other divisions are available as listed below:

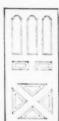
> N.D. 623-9 Marg. Its N.D. 625-10 Its., 2 w.

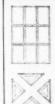
N.D. 626—12 lts., 3 w. N.D. 627—15 lts., 3 w.

N.D. 630- 5 hor. lts.

#### POPULAR SIZES

Nos. N.D. 620, 622 2'-0" x 6'-8", 2'-8" x 6'-8", 2'-8" x 6'-8"





N.D. 608

N.D. 612

#### POPULAR SIZES

Nos. N.D. 591, 584, 608, 612 2'-8" x 6'-8", 3'-0" x 6'-8", 3'-0" x 7'-0"



REMODEL EASIER . . . FASTER! With an EZ-WAY folding Stairway

Remodell . . . Modernizel Install an EZ-WAY Folding Stairway to turn waste attic space into useful room for storage, den or bedroom. At nominal cast! See your dealer or write for name of nearest distributes.

### EZ-WAY SALES, INC.

MINNESOTA WOOD SPECIALTIES, INC.

#### LOW COST ALL METAL INTERLOCKING EZON WEATHERSTRIP

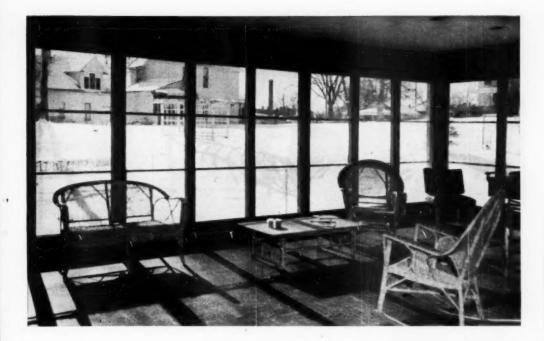


Easily Installed
No Special Tools Required
RUSTLESS
Moisture-Proof Draft-Proof
Dust-Proof Protection
Complete in Cartons

For Full Details Write New

#### ROBERT N. BALTZ & CO.,

1009 Harvard Terrace Evanston 1, III.



### Give Your Customers a More Useful Porch!

Do you ever meet price resistance when selling a porch? Do your customers say, "that's the right price IF I could use this porch more than two months a year."

Raymor Windows give you the perfect answer for this customer... because Raymor Windows give you both a cool summertime porch AND a warm extra living room in the wintertime.

Here's why Raymor Windows are better for all seasons. In the summertime they open wide from either top or bottom for coolest comfort. They close quickly and easily to guard against rain, wind or dust.

In the wintertime you can live in your porch with simple winterizing. Even without winterizing, your furniture and rugs are completely protected against snow, cold and wind by weathertight construction.

#### Construction features include:

- 1. Extruded, anodized aluminum frames that fit tightly, slide easily and are guaranteed not to rust or corrode.
- 2. Chemically treated outer frame is part of every Raymor Window unit which means easier installation, plus a guard against moisture rot.
- 3. Lifetime Lumite screens are used in every unit which means no bulge, no sag, no rust, no break.

Good delivery is assured despite current material shortages.

Do you want more information on the only window of its kind? There is absolutely no obligation, just send in the attached coupon for complete details.



ARE THEIR OWN BEST SALESMAN

5901 Wayzata 8	Indow Co. Nvd., Minneapolis,	Minn. I	Dept. "8"	
Gentlemen: Pleas for porches and b	e send me full inforeezeways.	formation o	n Raymar	Window
Firm_				
Street				
City		Stote		



## It helps show your customers you build with the best!

Building costs are high—and home-buyers are looking for value. Often a small item, like Lumite\* saran screen cloth, says value in a big way . . . because:

It's a sign that you've built with the best materials.

It's proof you haven't overlooked important minor details. That's how LUMITE plastic screening adds sale-ability to a house!

### Longest-lasting screen cloth you can buy!

In actual comparison tests under the worst exposure conditions, LUMITE resisted the effects of weather outdoors better than ALL other kinds of screen cloth! Salt air, humidity, city smoke, acid fumes cannot harm LUMITE.

#### Here are more LUMITE advantages:

- strongest, as proven in impact tests
- needs no protective paint or
- does not cause stains
- unharmed by water and almost all chemicals
- can be left up all year 'round
  ideal for every exterior use
- · priced right



Sold through Hardware, lumber, and building supply dealers and screen manufacturers.

FOR FREE
SAMPLE AND
FURTHER
INFORMATION:

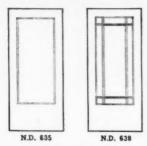


Lumite Division, Chicopee Mills, Inc. 2
40 Worth Street, New York 13, N. Y.
Gentlemen: I am interested in the rustproof, stainproof, long-lasting qualities of Lumite saran screen cloth. Please send me PREE sample and further information.

NAME.
COMPANY.
ADDRESS.
CITY. ZONE STATE

#### **Exterior Doors**

(Continued from page 134)



Above 1 light design N.D. 635 can be divided as in Design N.D. 638 or other divisions are available as listed below:

> N.D. 636— 3 vert. its. N.D. 637— 8 its., 2 w. N.D. 640—10 its., 2 w. N.D. 641—12 its., 3 w. N.D. 642—15 its., 3 w. N.D. 644— 5 hor. its.

POPULAR SIZES Nos. N.D. 635, 638 2'-8" x 6'-8", 3'-0" x 6'-8", 3'-0" x 7'-0"

National Woodwork Manufacturers Association Data

XTERIOR doors come in a variety of constructions, weights, finishes and designs. Nearly every known pattern can now be obtained as a stock unit in a large variety of standard sizes. A number of patterns of stock design are shown, together with a group of flush type doors on which are secured bands of plywood and mouldings for additional decorative effects.

#### Trend to Flush Doors

The pronounced trend to flush doors is soundly based on public preference. Architects and builders use them to express the spirit of modernity, with the practical considerations of economy and enduring quality. Flush doors offer great versatility—providing any desired architectural or decorative designs, the popular ranch type, the modern colonial and the solar house.

Where natural finishes are desired, and where particularly severe weather conditions are encountered, doors should be treated with a clear waterproof preparation.

The illustrations that follow on pages 138, 139 and 141 are flush doors to which a variety of mouldings have been applied to provide individuality to the front door. These and many other variations can be obtained easily and inexpensively on the job by any carpenter.



#### Hidalift offers more "SELL" features because it is:

100% CONCEALED-There's nothing exposed to mar the beauty of modern windows. No part protrudes or is otherwise exposed to view.

DESIGNED for EASY, FAST INSTAL-LATION - smooth-as-silk lifetime operation.

EASIER TO TENSION - Tensioning can be applied before or after installation without special tools.

FITS WINDOW with or without weatherstripping.

POSITIVE LIFTING POWER provided by highest quality coil spring.



TWO TYPES OF ATTACH-ING BRACKET—Tension is applied DURING instal-lation by winding binged bracket arm (on 'L'' type); AFTER installation by turning tensioning screw on both "L" and cup types.

Quality Products For Over a Century





HIDALIFT DIVISION The Turner & Seymour Mfg. Co. Torrington, Conn.
Gentlemen:
Send complete literature and prices on Hidali Please check Dealer Builde
Name
Address
CityState

Let us send you this book of

### **HOME BUILDERS** SHORT-CUTS

for FREE five-day trial

More than 800 "practical job pointers" that save time, expense and labor on building jobs.

Now? Carpentry, building construction and building repair jobs are made easier with the practical methods shown in this big 211-page book. Every one of these methods has been TESTED in actual use; every one saves time, saves work, saves money.

Contents include: 88 handy ways to use tools; 37 ideas for work benches and attachments; 62 work-saving ways to use portable equipment; 39 suggestions on excavations, foundations and forms; 32 methods for making sills, girders, joists and sub-flooring; 49 hints on exterior and interior wall construction; 36 short-cuts in repel and hay construction;

roof and bay construction;

19 tips on making cornices and porches;

54 ideas for interior wall covering and trim;

27 helps on stair construc-tion; 37 window suggestions; 54 ide-as for installing doors; 29 tips on closets, shelves and built-in equipment; 24 flooring pointers; 35 aids in installing sanitary equipment; 44 short-cuts in laying out work; etc., etc., etc., More than 700 illustrations 700 illustrations show you exactly "how-to-do-it." All items indexed so that any particular idea or short-cut you want can be located instantly.

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Examine 5 Days FREE Examine 5 Days FREE Just fill in and mail coupon below to get practical Job Pointers' for 5 DAYS FREE TRIAL. If not fully satisfied, return the book and over the property of the property of

DO YOU KROW HOW TO Raise a sagging beam without using a jack? Repair a sunken floor board without ripping out the entire floor? Scribe and fit boards to an irregular surface? Replace broken asbestos shingles? Repair worn door hinges? Lay a wood floor over a concrete base?

concrete base?

Fit door casing to a wall
surface out of plumb?

Make sagless garage door?

Make a septic tank grease
trap?

Put plue into a partition

Put pipe into a partition already plastered?

Apply corner moulding to wallboard? wallboard? Quick answers en these and HUNDREDS OF OTHER building problems are at your fingertips in "Practical Job Pointers." Mail coupon below for your copy today.

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Address	



Our stairways have been on the market for 35 years. Takes up no space in the room below. Folds up into the ceiling. Write today for literature and details.

YOUR CHOICE OF 7 MODELS

Install a Bessler Disappearing Stairway to provide a convenient means of gaining access to the upper story. Simplicity itself to operate and install; neat in appearance and strongly built. A practical and satisfactory modern space-saver.

THE BESSLER DISAPPEARING STAIRWAY CO.

Akron 5, Ohio

### **EATHER-BLOC** Single Unit VENTILATO FOR GLASS BLOCK PANEL NO SACRIFICE OF OUTSIDE

### BEAUTY OR PRIVACY

 Controlled Ventilation Stainless Steel Body

WEATHER-BLOC is available in 3 mo in all standard glass block sizes. STANDARD -glass louvers outside and inside. UTILITY -stainless steel louvers outside and glass louvers inside. ECONOMY—stainless steel louvers outside and inside, 6 and 8 inch sizes only.

WEATHER-BLOC is engineered for use in Homes, Stores, and Offices. The outside pre-sents a series of horizontal louvers which sents a series of horizontal louvers which blend with glass block. The two louvers on the inside can be closed or opened to any degree with the flip of a finger, thus con-trolling the flow of air either upward or downward to any desired degree. Aluminum screen inside.

Purchase Through Your Glass Block Dealer or Jobber Nationally Distributed by WINCO DISTRIBUTING & MFG. CO., Inc. 533 Bittner Street, St. Louis 15, Mo.

A Product of AIR RECTIFIERS, Inc. 3734 NORTH SOUTHPORT AVENUE . CHICAGO 13, ILLINOIS

Easy to Install

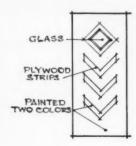
IN OLD OR NEWLY

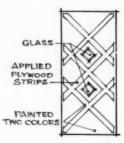
COMPLETED GLASS

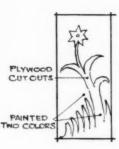
BLOCK PANELS

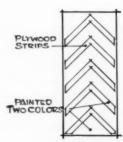
#### Exterior Doors . . .

(Continued from page 136)









AMERICAN BUILDER

Med .-- 2565122 478095

### HOW TO SAVE CASH ...



### INSTALL SUN-SASH!

#### Costs Less than Ordinary Windows

Everyone is talking about the new Sun-Sash "air controlled" louvred windows! This beautiful modern window is rapidly becoming the "new look" in window design. Sun-Sash offers outstanding features that no other window can give . . . and at lowest cost.

Sun-Sash windows can be used anywhere throughout the home, in offices, factories and institutions. Millions are now in use! And remember for more beauty . . . more comfort . . . more features . . . specify Sun-Sash—the new idea in windows!



1. Screw or nail Sun-Sash fittings



3. Close and of



2. Slide in

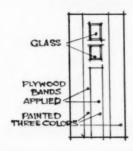


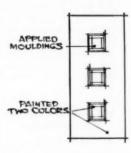
 Install ¾" stops for snug fit.

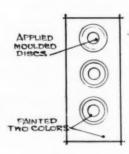


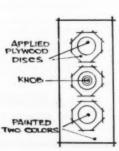
#### **Exterior Doors . . .**

(Continued from page 138)







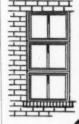




Dealers everywhere are lining up with New Monarch and selling their Genuine In-A-Slide all-steel basement windows, truly the best buy in quality windows today.

Heavy steel, press-formed channel construction—double weather protection—ease of installation instant removability of sash—these and many other Monarch engineered features have made In-A-Slides FIRST CHOICE among alert dealers and contractors.

The amazing yearly increase in In-A-Slide sales means BIG-GER AND BETTER DEALER PROFITS.



#### MULLIONS

Used with Standard In-A-Slides, Monarch Mullions make sturdy multiple willity window units of from 2 to 6 to a section. Fit wall openings of various sizes.

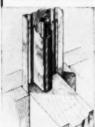
SCREEN AND STORM SASH TO MATCH

Sold Through

Dealers Only

When you thenk of Ensement Wenness thank of NEW MONARCH MACHINE & STAMPING COMPANY

#### perfect balance! fast, easy installation! the new CENCO ...



- Wide variety of sizes
- Weather tight
- Enclosed springs
- Simplified framing

#### COMBINATION WEATHER-STRIP SASH BALANCE

Here is the new Cenco sash balance with everything you need for fast easy installation. You get many standard sizes to choose from, and simplified framing to make your job easier-more profitable. This balance is weather tight and perfectly balanced with the correct weight spring for each size—giving long, trouble free operation. Write for complete data including sizes and prices. Immediate delivery

CENTRAL METAL STRIP CO. 4343 No. Western Ave.—Chicago 18, Illin

Complete line of weatherstrip

### TO BUILD BETTER ALUMINUM WINDOWS



**BIG ADVANTAGES** ABUHITECTURAL APPEAL, wide sliding glass parein provides streamlined beauty giving new approach

ilding design.

NLINESS—sliding sash removes into room for
washing. Aluminum will not stain adjacent
ing surfaces.

- positive locking in closed and one, two and
inch open positions, ideal for first floor bedinch open positions.

three inch open positions, ideal for first floor been the control of the control

Write for free catalogue,

Peterson Window Corporation 1353 East 8 Mile Road Ferndale 20, Michigan



### Save Valuable Time



Here's how to use your Catalog-Directory

FIRST—Leaf through the book from cover to cover and get the general layout in mind. This will enable you to use it sufficiently later on. The 5 Directory Sections are printed on colored stock for easy identification. If you are looking for the answer to a specific building problem, consult the index for the particular Product Reference Section you want. These sections tell you who makes it and how to use it.

#### 1. Building Products and Equipment Manufacturers

An alphabetical list of products and equipment listed under appropriate titles. No cross references to delay or confuse you.

#### 2. Brand Names

If you know the brand name but not the maker, you can find the name of the manufacturer here.

#### 3. Names and Addresses of Manufacturers

This section completes your Buying Guide by listing the principal manufacturers in alphabetical order.

#### 4. Industry and Allied Professional Trade Assns.

A valuable addition that saves you a lot of time when you want the name and address, and principal officers of local or national associations.

#### 5. List of Participating Communities in 1951 National Home Week

An alphabetical list by states of communities that have taken part and cashed in on the promotional value of National Home Week. Look and see if your community is listed.



If you have a special building problem—write us. Our editors have the knowledge and experience to be of real help to you. Don't hesitate to write. No obligation, of course.

### AMERICAN BUILDER

79 W. MONROE ST.

CHICAGO 3, ILL.

WHEN CUSTOMERS ASK...

### "What's New and Best in Windows?"



## Show them why it pays to be **Gate City** Awning - Window - Wise!

**AVAILABLE** in stock sizes and styles to fit every need.

**DELIVERED** to the job completely assembled, including hardware, glazing and weatherstripping.

ECONOMICAL to warehouse and handle.

AN EASY TO INSTALL, preservative-treated WOOD Window.

PRICED RIGHT ... of course!

#### GATE CITY SASH & DOOR CO.

"Wood Window Craftsmen Since 1910"
P. O. Box 901, Fort Lauderdale, Florida

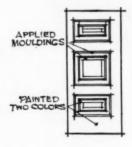
MEMBER OF THE PRODUCER'S COUNCIL, INC. Refer to Sweet's Builders' File 4-d GA

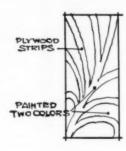
Try this new way to
"CLIPPING COUPONS"
on window profits. Send for
complete information

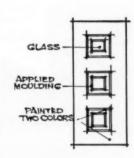


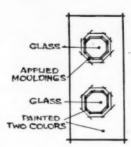
Exterior Doors . . .

(Continued from page 131)









## The ONE for your Job

## One-der metal door frame

Solid Welded Mitres

Double Stud Anchor Clips

Brass Strike

Rat Sill Knee

Prime Coated at the Factory



Installed Easily, Rapidly and at

Lower Cost

ONS DAN (SHE PASSE) MOAL PRAMISE

Also, One-der Window Frame

One-der Frames work readily with all conventional forms of construction. There is no job-site assembly, no pieces to put together, no extra material to buy, no finish carpenter taber. Whatever your job, you will profit by using One-der Frames.

### one-der frame

Corporation

2109 Third Avenue, North Birmingham 3, Alabama

## Superior Windows give complete weathertight protection and slide easily at all times

Laboratory tests prove that Bilt-Well Superior Windows have almost double the weathertight efficiency required by the American Wood Window Institute's Specification.

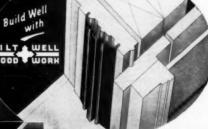
And, although Bilt-Well Superior Windows fit snugly, they open easily and quietly and slide smoothly under all weather conditions.

This unusual ease of operation is due to the patented Superior flexible Jamb-liner Weatherstrip which regulates the snug fit. In addition, the window is counterbalanced.

And, for you who are close to the building industry, here's 'special news! Bilt-Well Superior Windows are now adjustable to various wall thicknesses. See illustrations. Write us for further information.

#### CARR, ADAMS & COLLIER CO.

Dubuque, Iowa





ing and %" lath and plaster on 2 x 4's-and Superior full width



25/32" outside sheathing and dry-wall (% ) inside on 2 x 4's, and "Superior" minus inside strip on jamb.



1/2" outside sheathing and dry-wall (1% or 1%) inside on 2 x 4's, cut-off rib on blind stop and remove inside jamb strip.



%" outside sheathing and %" dry-wall ap-plied over ½" insulation board on 2 x 4's, cut-off ribon blind stop

See our products in Sweet's Architectural Catalog pages 24B/CA and 17C/CA

Here's a list of the BILT-WELL LINE Superior Unit Wood Windows . Exterior & Interior Doors . Entrances and Shutters . Clos-tite Casements . Carr-dor Garage Doors . Basement Unit Windows . Louvers & Gable Sash . Combination

Doors . Screens & Storm Sash . Corner (China) Cabinets . Ironing Board Cabinets . Mantels & Telephone Cabinets . Nu-Style & Multiple-Use Cabinets . Stair Parts.



Attractive cabinet and fireplace hardware harmonizes with the design of this room

HaRDWARE is an important sales aid. Automatic window operators, weather stripping, hardware which makes windows easy to open, easy to clean and efficient in ventilation, are all talking points. Doors hung on good hinges so that they will operate at a touch of the finger, quietly and easily, appeal to the housewife with small children. Push plates and escutcheon plates which make it easier to keep walls and woodwork clean also appeal, as do bathroom door locks which can be opened from the outside so that Junior can't lock himself in.

A house built to shout "quality" as you walk up to the front door gives the prospect a definite let-down when he takes hold of a cheap-appearing door knob, notices an indifferent lock, has trouble opening the door because it doesn't hang well on the hinges, and finds cheap trim used where good trim belongs. The effect of the finest layout of kitchen cabinets is spoiled when Mrs. Prospect pulls open a cabinet drawer and scratches her hand on a poorly-finished handle.

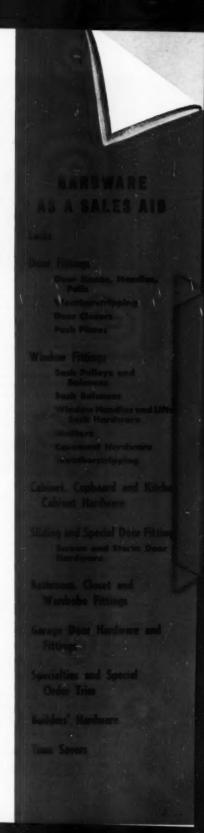
The use of high-quality fittings and hardware, well-designed shelf brackets, casters, latches, snaps, chains and guards for doors, door stops, door closers, bathroom fittings, clothes hooks and other wardrobe fittings, as

well as appropriate decorative trim and venetian blind or drapery fittings—all add in a thousand ways to the prospect's appreciation of the value of the property.

While impressed with modern design and efficient layout for comfortable living, prospects generally think in terms of the house built to last a hundred years. It is, of course, easier to point out structural features to a buyer who visits the house when it is under construction. Nevertheless, explanation of how heavy sill bolts are used to tie the frame to the foundation and how special truss fasteners. wall ties, sheathing nails, windowframe anchors, and other hardware items are used, will help to build appreciation for the "house that's built to last."

#### Specialties Help Sell. Too

The house with attached garage is now so common that much attention is paid by buyers to the problem of opening and closing garage doors. There are a number of manufacturers who have special hardware for this purpose, the easy functioning of which is a sales point for the builder. Combination screen and sash or storm door hardware, extra heavy hinges for some special purpose door, electric window and door operators,





Kitchen cabinet hardware is available in wide variety of styles to match fixtures

package or mail receptacles, and similar features are hardware items which add little to the total cost of the house but much to its salability.

When you use hardware as evidence of value, talk function. Explain that the locks and latches on the various doors were selected for certain special features of operation. Point out that finish hardware was selected to match the decorative scheme of the house, that it is easy to maintain and of a type easily replaced when necessary. Demonstrate throughout that the hardware used is not just "window-dressing" but represents function combined with beauty to increase the livability of the house,

#### Locks

Exterior doors require securitytype locks, generally fitted with pin tumbler lock mechanisms. Front entrances may have handle-and-thumb levers for better appearance. Available for doors of contemporary design is a lockset having a longer backset, placing the knob five to seven inches away from the door edge.

Locks for interior doors are made for both key and push-button operation for privacy in bedrooms and bathrooms. Access may be obtained in emergencies by screwdriver or pin releases. Special knob and lock assemblies are available for closet and locker doors, storerooms, roof decks, French doors, and other one- or twoside locking requirements.

In addition to locks mortised into the lockstiles of doors, the home builder may be called upon to supply night latches and dead locks, and occasionally padlocks. A wide variety of choice is available.

Cylindrical and tubular locksets have been designed for ease and economy of installation. Round holes are drilled for both lock and knob assemblies, and a minimum of mortising or routing is necessary for strike plates and lock plates. Adjustable mechanisms enable easy fitting to doors of different thicknesses, and installation costs are held to a minimum.

Most of these locksets have the lock mechanism in the center of the knob. Turn buttons or push buttons provide for locking from the inside on bathroom doors, etc.

In metropolitan areas, the use of a night or dead latch is often felt to be desirable for additional security. These should be of best quality,

#### Door Fittings

Door fittings will include such items as door closers, hinges, pulls and finger latches for sliding doors, and the like. The door fittings selected for a job depend on the type of doors used, the style of architecture, the price range of the building, and customer preferences.

Door closers are desirable for exterior doors. Relatively expensive, they will be omitted in lowest-cost housing, but should be suggested as an extra in housing for moderate to higher price levels.

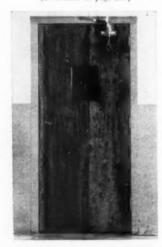
Door hinges for interior and exterior use—butt hinges—should be selected to match the thickness of the doors. The clearance of the door away from the trim must also be considered, as must the "hand" of the door (right or left hand opening) so that correct hinges for the particular doors are available on the job at the right time and place.

Hinges are made in medium and heavy weights. The heavy weight hinges are for factory, apartment building and industrial use, and will not ordinarily be required in small homes and light building construction. Medium weight hinges are made in both plain bearing and ball bearing types. Special hinges are available for metal door casements and metal doors; when these are used, care must be taken to select correct hinges if they are not provided by the manufacturer of the door mits.

#### Door Knobs, Handles, Pulls

Push plates, pulls and miscellaneous door trim are generally supplied by the same source as that used for locksets, so that the entire door trim will match or be in harmony throughout the building. Most manufacturers provide complete assortments of this type of hardware in a wide selection of styles and finishes, so that selection, once a particular design or type

(Continued on page 147)



Door closers should not be overlooked as a sales point. Freedom from slamming and control of drafts are desirable

GIVE CUSTOMERS' HOMES AND YOUR REPUTATION

THE BEST PROTECTION POSSIBLE!

--SARGENT LOCKS!



FOR ENTRANCE DOORS --SARGENT INTEGRA-LOCKS with the SENTRY BOLT

Sargent Integra-Locks give exterior doors—front and back—lifetime beauty...lifetime protection.

They give lifetime convenience, too—with key-in-knob action.

Your customers will appreciate your recommending and installing Sargent Integra-Locks on exterior doors for many reasons.

There is the exclusive Sargent SENTRY BOLT which gives added security, as shown above.

It is released, along with the latch, by just a quarter turn of the key.

There's the unique Shear Pin in the knob of the Integra-Lock.

It breaks when subjected to extreme torsion causing the knob to spin harmlessly...but allowing a key owner to operate it.

There are these other Integra-Lock features that add up to the best possible protection today: features such as interchangeable precision parts...compact factory assembled, factory-sealed lock cases...self-lubricating OLLITE bearings. Easy installation. (Practically impossible to install incorrectly.)



FOR OTHER DOORS --SARGENT "4500" LOCKS



Sargent "4500" locks not only give your customers the original tulip shaped knob but also offer a variety of operations such as those required for bathroom, passage and bedroom doors. A genuine pin tumbler cylinder function where security is needed.

They have quality in every detail. Are beautiful in design... match harmoniously with design of the Integra-Lock... make a handsome installation.

Quick and easy to install, too ...needs only a 1¼" crossbore.

Also remember this great "4500" lock feature: It has a full "" throw!

The bolt will travel the full distance every time. Separate spring for the latch bolt insures smooth forceful latching action—twin springs for knob hub create balanced knob performance.

No other lock in its price class has so many features! No wonder the "4500" lock leads among bored-in locks!





SCREEN DOOR HARDWARE, TOO!

Sargent Screen Door Hardware is built for lifetime service.

The Sargent Screen Door Closer takes up little space—only 2¼ inches between doors. Easily installed on practically any installation.

Adjustable spring lets door close surely, quickly, quietly...with control of spring power. Suitable for heavy duty use.

Sargent Screen Door Catches are simply applied by merely boring two holes...give easy action...keep doors shut tight. Lock from inside.

So check your screen door hardware requirements—and order SARGENT.

For full information about Sargent Locks and Sargent Screen Door Hardware ask your supplier...or write us. Dept. 5C.



Sargent and Company

New York . New Haven, Conn. . Chicago

Builders Hardware and Fine Tools since 1864

# THE ROCKET 1000 HAS EVERYTHING!











No. 1040 SERIES For By-Passing Multiple Deers up to 176" thick. (50 lbs. per door)

No. 1030 SERIES

For By-Passing Multiple Doors up to 34" thick. (50 lbs. per door)

No. 1020 SERIES

For Single Sliding and Bi-Parting Door Installations. (all door sizes to 50 lbs. per door)

DW PRICE

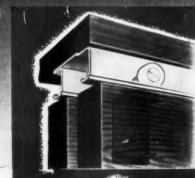
Priced for quick turnever, ROCKET Hardware is Quality Hardware at down-toearth prices. Write today for complete

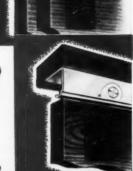
DEALER AIDS!

Merchandising material includes stuffers, ad mats, catalogue sheets, broadsides, window streamers. Powerful trade and consumer advertising. Working models for your counter or shelf!

Wifte today for immediate action from your supplier!

GRANT PULLEY & HARDWARE CO. 31-89 Whitestone Parkway, Flushing, L.I., N.Y.





(Continued from page 144) of hardware is established, is no

problem. Knobs for cabinets, especially built-in cabinets in living and dining rooms or areas, should also be in harmony as to style and finish. If brass is used as the finish for locksets and knobs, the remaining accessory hardware should have this finish. Kitchen cabinet hardware, however, is usually chrome-plated regardless of the finish used throughout the rest of the house. Other door hardware, which should be considered at the time the selection of locksets is made. will include such items as stops and checks, base knobs, push and kick plates, and chains and guards as a possible substitute for night latches.

Screen door closers are usually of light construction, operated by an air check device instead of the hydraulic mechanism of the regular closer for heavier doors, and need not be of finish to match. Standard screen door closers are adjustable, right or left.

Push plates on double acting doors, while they may be omitted, are one of the extra touches that give the builder an opportunity to demonstrate the excellence of his products at little additional cost. Glass, polished brass, and chrome-plate push panels are suitable for any type of trim, and require little installation expense.

The front door kick plate is another "extra" that may either be provided or omitted. Brass is durable but requires constant polishing to look well. Chrome needs no maintenance but may become scratched and pitted after continued use.

Weather stripping has been raised from the accessory class into a "must" in present-day home building. The buying public has been educated on the virtues of insulation and heat control in homes as a fuel-saving and draft-preventing measure. Weather stripping is equally important.

Base stops should be installed for wall protection at any point where (Continued on page 150)

#### DOOR SCHEDULE Lock Type (Installation) - Owner's Choice Manufacturer's Design - Owner's Choice Finishes — Polished brass (PB) Polished Chromium (PC) Prime finish Quality - Bruss base for locksets; steel base for hinges PLAN LOCATION LOCK HINGES TRIM **FINISH** OTHER ITEMS NOTES Three 4" x 4" Front (134" thick) Cylinder Handle Set-Doorbell All cylinder locks PB Outside Both Sides (Prime finish) Mail Receiver for all exterior Threshold doors (over-Knob Set-Inside House Numbers head garage (In Matched Set) door included) and night latch 2 Service (1%") Cylinder Knob Set PB-Exterior Three 4" x 4" Threshold to be keyed PC-Interior (Prime finish) alike Cylinder 3 Overhead Garage Overhead hardware by contractor 4 Garage (1%") Night Latch & Knoh Set Three 4" x 4" Latch Set (Prime finish) Combination Storm-Latch Set Knob-Outside PR Three 3" x 3" (Galvan-Door Check and Solid brass im-Screen-Two Doors Lever-Inside ized; brass pins) Safety Chain portant Knob-Room Side Coat Closet (136") Three 3½" x 3½" (Prime flaish) Latch Set PR Doorston Spindle-Inside Bathroom (1%") Bath Set Knob Set PB-Hall Side Three 31/4" x 31/4" (Prime finish) Deorston Emergency key PC-Bathroom Bedroom (134")-Latch Set Knob Set PB-Two Sides Three 356" x 356" Doorston Q Sliding Closet (1 1/4")-Two Pairs Mortised Pulls Sheaves and Tracks PB 10 Double-Acting (1%") Checking Floor Push-piates CABINET SCHEDULE II Linen 214" # 214" Friction Catch Pull Door (136") Two on door Drawers Pulls 12 Kitchen Manufacturer's cabinet hardware furnished by contractor 13 Bathroom WINDOW SCHEDULE (Type and Number Required) 14 Double Hung (13) Sash Locks PB or PC depending on location Bar Lifts. 15 Casement (1) Manufacturer's hardware supplied by contractor 16 Storm Sash (12) Hooks and hangers supplied by contractor Ventilating devices where desired 17 Screens (12) Hangers to match storm sash hooks MISCELLANEOUS - Closet Accessories (Clothes hooks, hat racks, shoe holders)

### BEHIND THESE BEAUTIFUL WALLS AND THOUSANDS OF OTHERS

Throughout the Country ...



YOU'LL FIND GEMCO PRODUCTS That Saved Many Man-Hours and Cut Building Costs!

Because labor time is such a vital factor today, more and more builders are using Gemco products . . . eliminating the slow, hazardous jobs of drilling for anchorage to brick, tile, concrete, and steel. You, too, can save many man-hours and cut costs on residential, commercial and industrial buildings the Gemco way.

#### **GEMCO** ANCHOR NAILS

... for installing furring strips, plaster grounds, carpet strips, etc. Fastened to surface with approved adhesive, they have ample strength to hold sidewall loads in place securely. Easy to install; anchoring is sure, safe, permanent.



. . . for quick, easy installation of metal cabinets, outlet boxes, dispensers, mailboxes, etc., on concrete, brick, steel, hollow tile, gypsum tile. No drilling or welding.

#### **GEMCO** Insulation Hangers

... ideal for installing batt-type insulation on concrete, brick, or metal. Many man-hours are saved over welding of wires or installing mechanical fasteners.



Other Goodloe E. Moore, Incorporated, products: TUFF-BOND outstanding adhesives . . . super-strength . . . waterproof . . . sticks almost anything to anything. TUFF-TRED Safety Stair Nosing . . . for protecting any type stair steps from wear, improving the safety factor, maintaining and restoring stairway beauty. Write, 'phone, wire . . .

#### GOODLOE E. MOORE

INCORPORATED

DANVILLE, ILLINOIS

In Canada: W. D. ELMSLIE, Ltd. 409 Notre Dame St., West, Montreal 11, Quebec

#### HOW TO DETERMINE SIZES OF BUTT HINGES

Door sizes given are jamb opening dimensions.

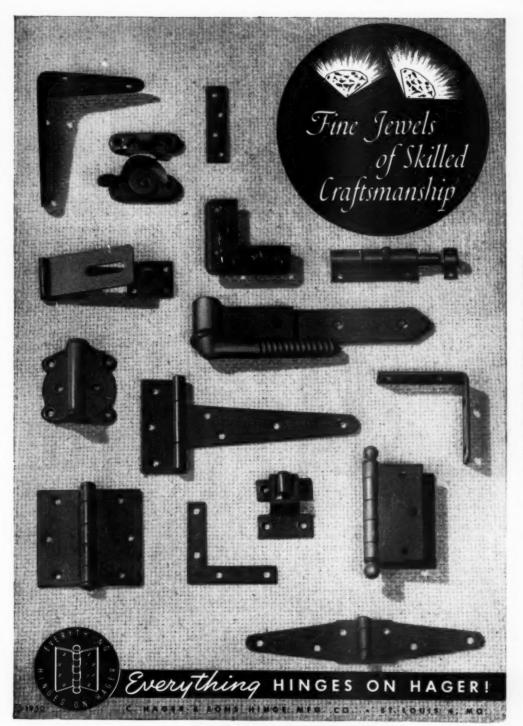
Thickness of Doors in inches	Width of doors or height of transoms in inches	Height of butt hinges (length of joint), inches
3/4 and 3/8 cupboard doors	To 24	21/3
% and 11/a screen doors	To 36	3
11/a doors	To 36	31/2
11/4 and 13/4 doors	To 32	31/2
Do	Over 32 to 37	4
1 16, 13/4 and 17/8 doors	To 32	41/2
Do	Over 32 to 37	5
Do	Over 37 to 43	5 Extra heavy
Do	Over 43 to 50	6 Extra heavy
2, 21/4 and 21/2 doors	To 43	5 Extra heavy
Do	Over 43 to 50	6 Extra heavy
11/4 and 13/4 transoms	To 20	21/2
Do	Over 20 to 36	3
11/2, 1 %, 13/4 and 17/8		
transoms	To 20	3
Do	Over 20 to 36	31/2
2, 21/4 and 21/2 transoms	To 20	31/2
Do	Over 20 to 36	4
Doors 60 inches high and		2 butt hinges
Doors over 60 inches high 90 inches high	and not over	3 butt hinges
Doors over 90 inches high	and not over	o butt miles
120 inches high	and not over	4 butt hinges
Transoms 48 inches wide	and under	2 butt hinges
Transoms over 48 inches		
84 inches wide	wide and not ov	3 butt hinges
or menes wide		5 butt minges

#### HOW TO DETERMINE TRIM CLEARANCES FOR BUTT HINGES

The table below lists clearances for trim of regular stock size butt hinges for wood or hollow metal doors. The clearance is estimated on butt hinges set back 1/4 inch for doors up to 2½ inches and ½ inch for doors 2½ inches to 3 inches in thickness. Where trim presents a specific problem in determining the proper width of the butt hinges for a door, take twice the thickness of the door, plus the thickness of the trim and deduct ½ inch for doors up to 2½ inches in thickness, and 3½ inch for doors 2½ inches to 3 inches in thickness. The result will give the proper width at hinge to allow the door to open at 180°. Should the result come out uneven, use the next regular stock size.

Thickness of Door Size of Butt Hinge Maximum Clearance

(Inches)	(Inches)	(Inches)
13/8	3 x 3 3½x 3½ 4 x 4	1 <sup>3</sup> / <sub>4</sub> 1 <sup>3</sup> / <sub>4</sub>
1916	4 x 4 4 <sup>1</sup> / <sub>2</sub> x 4 <sup>1</sup> / <sub>2</sub> 5 x 5 6 x 6	13/6 17/6 23/6 33/6
13/4	4 x 4 4 <sup>1</sup> / <sub>2</sub> x 4 <sup>1</sup> / <sub>2</sub> 5 x 5 6 x 6	1 11/2 2 3
17/6	41/ax 41/a 5 x 5 6 x 6	1 <sup>1</sup> / <sub>4</sub> 1 <sup>3</sup> / <sub>4</sub> 2 <sup>3</sup> / <sub>4</sub>
2	41/2×41/2 5 × 5 6 × 6	1 1 1 1/2 2 1/2
21/4	5 x 5 6 x 6 6 x 8	1 2 4
21/2	5 x 5 6 x 6 6 x 8	13/4 33/4
C. Hager & Sons Data		



# Richards-Wilcox

## **VANISHING DOOR**

HARDWARE



Save space
Save trouble



SILVER STREAK R-W No. 1019 Vanishing Door Hangers and

The trend is to small homes today. And with this trend comes the necessity of utilizing every available inch of space. That's where the Richards-Wilcox Vanishing Door Hardware comes in. Specially designed for thin wall construction, noiseless operation and easy installation, they help make a room livable from wall to wall. R-W Silver Streak Vanishing Door Hangers and Aluminum Track are constructed for flexibility—for use on single or parallel wardrobe doors, or for sliding doors in any room.

#### Check these important points!

- Four types of hangers to accommodate various size doors and building requirements.
- Adapted to thin walls to save space and reduce building costs.
- No interference with room furnishings or decorations.
- Tight fit of door to floor avoids drafts, loss of heat.

 Adapted to single sliding and parallel sliding house doors.

For more information, contact our nearest office or request one of our illustrated folders describing in detail the uses and advantages of SILVER STREAK.

1880 FEN 1952

Richards-Wilcox Mfg. Co.



Lockset combines central cylinder, deadlock boit, and finger button control. Special locksets are available for glass doors, bathrooms, closets, etc.





Above is shown typical screen door closer for light duty doors. The medium duty door closer shown below handles combination screen and storm doors, is quickly installed

(Continued from page 147)

doors swing open so that the knobs could damage the walls. Selection can be made to fit the styling of the room and the rest of the hardware.

#### Window Fittings

The relatively crude and haphazard window fittings of a generation ago have been replaced by carefully engineered, accurately made devices for all types of windows, whether they are casement hung, sliding, double sash, screens or storm windows.

Sash pulleys used in conjunction with weights for counter-balancing double sash, screens or storm winand improved in design. The spring sash balance with the window suspended by a steel tape wins favor because of its positive action and ease of installation. Quality materials make maintenance and replacement negligible, and housewives like the inconspicuousness of the tape which is easily painted to match the woodwork of the window frame. Narrower tapes of improved steels further this trend, and smaller spring

(Continued on page 154)

# LOCKWOOD BUILDERS' HARDWARE... a complete line . . designed to



STANDARD DUTY KEY 'N KNOB SET ...
FOR HOMES, APARTMENTS AND
OTHER LIGHT CONSTRUCTION

Made only of the finest materials. Designed for fast, economical installation. An exclusive Lockwood feature permits easily equalized knob projection on doors 1%" or 1%" thick. Made in a range of functions to cover all locking requirements.

DO

Here are a few of the many Lockwood items that are showing contractors important savings on installation costs. At the same time, they give the owner attractive hardware that assures him of long, trouble-free service.



FOR ECONOMICAL INSTALLATION ON LOW COST HOUSING

Steel aligning units guarantee free working assembly of knobs, trim and lock on door. Machine screws clamp set firmly in position. Made with functions for passage doors, without locking feature, and with privacy locking button inside, for bath and bedroom doors.





BALL BEARING DOOR CLOSER



SASH FASTENE

BAR SASH LIFT

WALL-TYPE DOOR STOP

3

BARCLAY DESIGN



CYLINDER SCREEN-STORM DOOR LOCK



MADISON DESIGN



LOCKWOOD HARDWARE MANUFACTURING COMPANY

## CORBIN

HARDWARE

"Sa. a-ay!
that's a Corbin Lo



Handsome
Appearance
Appearance
Fine "feel"

nationally known!



#### CORBIN TUBULAR LOCK



Choice of careful builders everywhere . . . because it's a smart combination of quality with economy. For interior and exterior doors.

*Montgomery* LOCKSET

A classic design that helps make that first impression a good one!

## **HELPS SELL HOUSES!**

New homes sell quicker when buyers spot extra-quality touches-like the CORBIN name on hardware! It's a good reflection of the thought and quality you've expended on the entire house . . . and buyers know it; because Corbin hardware is backed by an impressive national advertising program.

Corbin hardware has a handsome appearance . . . a fine "feel" . . . and will give years and years of dependable security.

You'll find it's true-Corbin Hardware is an important part of your quality picture . . . adds little or nothing to your cost picture.

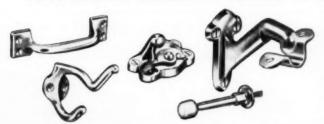
Always insist on Corbin hardware in the homes you build.

## Nationally Advertised

in

The Saturday Evening Post Better Homes & Gardens Small Homes Guide House & Garden's Book of Building House Beautiful's Building & Maintenance Manual

#### PRESSURE-CAST ALUMINUM HARDWARE BY CORBIN



#### ...for homes in every price range!

It's new . . . it's economical . . . it will never rust! Amazingly strong, Corbin's pressure cast aluminum hardware has the finest appearance you've ever seen. Available now in either brass finish or aluminum finish. Use it on every home you build . . . and insure customer satisfaction!

GOOD BUILDINGS DESERVE GOOD HARDWARE



#### P. & F. CORBIN Division

The American Hardware Corporation New Britain, Connecticut, U. S. A.

#### BE SURE OF LIFETIME DEPENDABILITY-WITH CORBIN QUALITY!



For light double-acting inside doors . . . between diningroom and kitchen, etc.

#### Screen Door Closer

Corbin No. 21 Door Closer does a fine job at low cost. Sturdily made for years of sure, quiet closing. Fits any screen door.





SPECIALIZED LOCKS AND BUILDERS" WARDWARE





Modern design in window hardware combines efficient operation and attractive appearance. Casement latches and operating mechanisms shown at left and center assure smooth operation and draft-free closing

(Continued from page 150) balance units reduce the space requirements for otherwise lost space.

A variation of the spring balance provides balancing action which is supplied by a coiled spring in a vertical tube, operating a spiral lift this type is efficient in operation and is concealed completely in the casing.

#### Window Handles and Lifts. Sash Hardware

Window lifts and handles, if not painted to match the woodwork, should be in keeping with the design and finish of the rest of the room hardware. Other sash hardware such as locks, bolts, adjusters, etc., should be chosen from the viewpoint of most efficient operation and best quality. Screen hangers, corner braces, and hangers, braces, and adjusters for storm sash should all be supplied and installed properly.

#### Shutter Hardware

Many of today's popular styles of architecture feature shutters both for beauty and weather control. Shutter hinges are available in utility and decorative styles, finished to be weather-resistant and maintain appearance over long life.

#### Casement Hardware

Casement-hung windows require the best quality adjusters, hinges, and fasteners for continued ease of operation and weather-tightness against wind and water. While metal casement windows usually have operating mechanisms and hinges supplied as a part of the window assembly, the builder using wood casement sash will find equally efficient hardware available. Extension-type hinges allow both sides of the window to be reached for easy cleaning, and pro-(Continued on page 158)

## ADDS THAT EXTRA QUALITY TOUCH! eco-latch with the PERMANENT MAGNET!



House Trailer Cabinets . Ship and Boat Lockers . Any Cabinet Door!

Lasts forever-nothing to get out of order. Works perfectly-even if doors sag or warp. Doors open easily-without snap, noise or jerk. Holds door in place firmly, yet gently. Easily installed. Improves appearance.

NATIONALLY ADVERTISED-In Better Homes & Gardens, House Beautiful, Sunset, Popular Mechanics.

Adding Leco-Latches is the easy way to add extra sales appeal to that next new home you build!

For literature, prices and name of distributor, write

### LABORATORY EQUIPMENT CORPORATION

ST. JOSEPH, MICHIGAN



have an easy spring latch with a light spring for the bolt and heavy-tension

knob return-a feature found only in the most expensive

locks. Also, WESLOCKS have key-in-knob construction, 5-pin tumbler locking mechanism for maximum security, split

spindle, independent knob operation, factory assembled units, self-aligning feature and a wide choice of

handles, ornamental escutcheons and finishes. Best of all, WESLOCKS are priced to

meet the most modest budgets. Truly, they offer you the best hardware value at any price. Send today for catalog.

WES LOCK

**W**ESLOCK

ES LOCK

MANUFACTURING CO. P.O. Box 2261, Terminal Annex Les Angeles 54, California



ESLOCK

Another WESLOCK installation Park Forest, Illinois. Contains a total of 3,010 apartments, 5,000 homes,

Chicago, III.
Builder American Community Builders, Inc

## Door Hardware Locks and Hinges

#### **Functional Lock Types**

Security: Bit-key locks on rear and side doors provide the means for most illegal entries. Many bit-key locks can be easily picked or opened with a ten-cent skeleton key. They are not safe for outside doors without a separate dead bolt lock.

Cylinder locks insure against burglary and should be installed on all exterior doors used for entry by the family —not just the front door. Other exterior doors may be safeguarded with bolts which operate only from the inside.

Convenience: All cylinder locks used for one house (including garage) should be keyed alike — ordered to operate with the same key.

A cylinder dead lock on one closet permits prized possessions to be locked up during the owner's absence.

**Economy:** Bedroom and some closet doors can be "trimmed" with latch sets, thus saving the cost of unneeded key locks. Closet doors generally need knobs on the room side only; spindles, on the closet side.

Thickness (In Inches)	Dear Widths (In Inches)	Hinge Height: (In Inches)
3/4 to 11/8 cabinet doors	0 0 0 0	21/2
% to 1% screen or combination		3
1% doors		31/2
1% doors	To 36 Over 36 to 40 Over 40	4 1/2 5
2, 21/4 and 21/2 doors	* * * **********	5
Transoms and casements		
1% and 1%		3
2, 21/4 and 21/2	+ + +	31/2

#### Types of Door Sets and How They Are Installed

	PREPARING	BIT-KEY	CYLINDER	BATH SET	LATCH SET
	THE DOOR	( For Interior Doors )	( For Exterior Doors )	( For Bath, Bedroom Doors )	( for Interior Doors Requiring No Lock )
NOTCH INSTALLATION  Most recent lock development for homes is the lockest which can be installed merely by cutting a notch in the floor. Such locks come completely assembled in one cut ready for incompletely assembled in the complete of the lock has been manufactured for years for use on commercial buildings.  Outstanding characteristics: Installation speedy. Most expensive type of lock, but least expensive to install.	Notch	No Bit-Key Adaptation	क्राइं १	DECRE	
BORE-IN INSTALLATION					->
There are a number of buckets on the market whose installation requires only the buring of two holes and the pourse only the buring-plate. Position of the holes varies with the type of look. These looksets are compact and are easily installed. There are two general types:  Cylindrical: A patented lock made by one	10	No Bit-Key Adaptation	† ©	i cc	3 (10)
manufacturer. Lock is unit-hudt (mechanism is housed in a round unit which operates the	Cylindrical			Locking Device	The last of the la
latch bolt). It has no screws fastening to the door except those on the face of the lock.	-		7	Em-	- amin
Tubular: Probably the most popular type lock today. Name is obtained from the fact that all the mechanism is housed in a round tobe about it in diameter which is placed at right angles to sharit.	Tubulge	No Bit-Key Adaptation	E 6 9	Computer 6	
MORTISE INSTALLATION  The "old reliable" and most common installation. Looks of marrise type require a rectaingular out-out in the edge of the door. One or two holes must be bored.  Disadvantages: Slow and costly installation. Cut-out-wakens door and makes it difficult to install small roses. Poor carpentry work often causes latch and knoh binding.	Martise				
RIM INSTALLATION  Oldest type. Lock is placed on the surface of the door. Usually rise fock is made only in the bit-key algaptation. As a general rule, it is undesirable, despite fact that it is the least expensive of all types. Breas and iron rim locknets are sometimes designed for a distinctive architectural style; these authentic period pecos are expensive.	000 No		Cslinder lock is safest type — cannot be operated by the common skeleton key. Usually includes a latch -and a dead bolt lock.	Both set locks from inside only. Must have device for unlocking from outside in case of emergency.	Latek set has no locking device. Can be unlatched from either side.

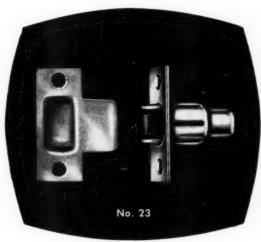


## Home owners like

the convenience of interior doors \*

equipped with the





#### EASY TO INSTALL -

Simply bore a %" hole, 2%" deep, at desired location on the door.





#### EASY TO ADJUST -

No tools needed. To adjust for clearance between door and casing, as well as to regulate tension of Catch, simply pull roller-plunger forward and turn with fingers. Each half-turn provides 1/64" adjustment (maximum adjustment %").

Home buyers marvel at the Stanley Roller Catch. It's so simple, so smooth and silent in operation, so convenient. It holds doors securely in closed position (all that's necessary for interior residential doors where a lock is not required) and eliminates rattling.

Not only do you build client good will... you reduce building costs when you equip interior doors with the Stanley No. 23 Roller Catch. It can be installed quickly and, even in small homes, represents a substantial saving.

Catch may be used on closet, wardrobe, and communicating doors . . . at top or bottom of door, as well as in the conventional latch position. Make the homes you build more convenient to live in — yes, and to buy. Install Stanley No. 23 Roller Catch.

\*Not requiring a lock.

The Stanley Works, New Britain, Conn.

REMEMBER TO A DOOP



HARDWARE • TOOLS • ELECTRIC TOOLS
STEEL STRAPPING • STEEL





Casement locking handle at left above is especially designed for operation with Venetian blinds, will not mark or break blinds when they are being raised or lowered. Casement operating handle at right is gear operated, may be used with insidemounted screens

(Continued from page 154) vide better ventilation. Gear-type adjusters provide positive control of the sash opening and permit operation of the sash with interior screens in place. Automatic closing latches overcome the resistance of tight-fitting weather strip.

#### Weather Stripping Materials

Felt weather stripping is economical, easily installed, and will more than repay installation costs in fuel savings. Weather strip of spring bronze is more expensive, but provides a neater installation, and once



The popularity of Colonial cabinets is supported by a complete line of hardware of authentic design and appearance. Mechanical construction is of highest quality



The drawer pulls and door latch shown are typical of best present-day styling



Flush-type latches for cupboards and drawers eliminate projections in narrow

installed is reasonably permanent.

Many windows have built-in weather strip elements. In at least two such available, the sash balance is controlled by a spring action against the sash, which also performs the weather strip function. The growing demand for more window space in relation to wall areas makes efficient weather stripping more imperative, and of greater influence on sales.

#### Cabinet, Cupboard, and Kitchen Cabinet Hardware

When ready-made kitchen cabinets are supplied by manufacturers, hardware customarily comes as a part of the unit. Some manufacturers offer a choice, which should be made according to design and quality reonirements.

When the builder constructs the kitchen cabinets as custom-built units or purchases unfinished units from the millwork supplier, the hardware must be obtained separately and installed. Because of sales appeal of quality kitchen installations, every effort should be made to use hardware and cabinet specialties that will enhance the builder's work. Laborsavers and space-savers such as pot holders, knife racks, etc. will more than repay their slight cost.

Built-in shelving, as in kitchen cabinets, wardrobes, bookcases, and record storage cabinets, is given added flexibility of use by the incorporation of adjustable shelf brackets. The ability to add or remove shelving or vary shelf spacing leads to greater space economy and more efficient use.

#### Sliding and Special Door Fittings

One of the best techniques for conservation of space in modern homes is the use of sliding doors, especially for closets, wardrobes, and similar applications. Hangers, rollers, track. stops, and guides have been developed and refined to match modern structural materials, Manufacturers have developed hardware for all types of doors; both adjustable and non-adjustable hangers; special tracks for low headroom spaces; concealed guides, and many other features which make installations simple, economical, efficient and attractive.

Special flush-mounted finger pulls, latches and locksets have been created to coordinate with sliding doors giving complete access to all parts of wardrobes and storage units. Bumpers and stops make trouble free operation. Ball-bearing hangers and fibre rollers make sliding doors smooth and noiseless.

Screens and storm doors may readily be assembled by the builder, using a wide variety of door corner plates. braces and other materials for this work. Special hardware fittings are available providing for interchange of screens and storm sash in the same door frame. Latches, door closers, barrel bolts, and other accessory hardware is installed to suit customer preferences.

## Bathroom, Closet, and Wardrobe Fittings

Bathroom fittings, although usually installed by the plumber, will be selected and in many instances purchased by the builder. Paper holders. towel bars, toothbrush and drinking glass containers, shower curtain rods

(Continued on page 162)



Nylon rollers and adjustable hangers make for smooth, trouble-free operation

# ONLY KENNATRACK

HAS SLIDING DOOR HARDWARE

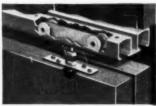
Specially Designed and Engineered for every interior application



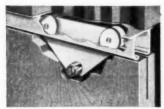
SERIES 250—For by-passing  $\frac{3}{4}''$  to  $1\frac{1}{4}''$  doors on cabinets, wardrobes and fixtures. Hanger permits mounting doors flush with cabinet face.



SERIES 400—For heavy closed pocket installations. This is generally considered the finest sliding door hordware obtainable. Allows vertical door adjustment, Ball bearing hangers.



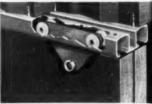
SERIES 600—A new double track designed for 1½" by passing wardrobe and closet doors. Has newly designe adjustable hanger providing convenient means of aligning door to side jamb. Allows ½" vertical adjustment.



SERIES 300—Kennatrack's most popular hanger. Series 300 is for converging doors, closed and open pocket installation. Has exclusive mounting plug feature requiring minimum headroom of only one inch.



SERIES 800—Metal Sliding Passage Door Frame, Prafabricated, Complete with Grows SERIES 400 heavy duty track intached to header of factory. Eliminates all waspage, Easily installed by anyone. Vertical and harizontal ADJUSTARNT factores. Wood filler strips permit plaster base, trim and stops to be nailed or screwed to frame.



SERIES 650—Exclusive expansion-sleeve mounting plus feature requires minimum headroom space of only 1 Easily installed—just screw track to header! Acceptance of these features is proven by world-wide demand.

At McKenna we specialize in only one thing
. . . sliding door hardware. As a result the
KENNATRACK line is the most comprehensive and versatile line of sliding door
hardware ever available. There is a KENNATRACK for every purpose. Each track is specially designed and engineered for a particular
interior use. Each door slides smoothly not
on two, not on four, but on EIGHT nylon
wheels except on Series 250.

In addition there is a KENNATRACK Series 800 METAL PASSAGE DOOR FRAME. It comes prefabricated and complete with SERIES 400 ball bearing heavy duty track attached to header at the factory. Can be assembled on the job in about 20 minutes.

Features of the KENNATRACK line are too numerous to mention. Moreover, you get all your sliding door hardware from one source, Ask any KENNATRACK jobber about KENNATRACK'S record for fast delivery, prompt service! Specify KENNATRACK for the plus in value,

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## JAY G. McKENNA, INC.

ELKHART, INDIANA

JAY G. McKENNA (Canada) Ltd., 104 Jarvis St., Toronto, Canada

SPECIALIZING EXCLUSIVELY IN THE MANUFACTURE OF SLIDING DOOR HARDWARE

ITEM	QUANTITY	DESCRIPTION	SOURCE
OCKS Tubular, cylindrical Night latches Padlacks Knob and latch sets			,
Closers Hinges Hinges Knobs, handles, pulls Steps, checks, buse knobs Latches and bolts Chains and guards Push and kick plates Weather strip			
WINDOW FITTINGS Sash pulleys and cord Sash balances Handles and lifts Operators, adjusters Latches, locks, bolts Casement fittings Weather strip			
CABINET, CUPBOARD FITTINGS Hinges Handles, knobs, pulls Latches, catches Hasps, snaps Brackets Corners, plates Casters			
SLIDING & SPECIAL DOOR FITTINGS  Streen and storm doors hardware Heavy hinges and hangers Stiding door hardware Folding door fittings			
GARAGE DOOR FITTINGS Hangers and tracks Locks and latches Operators			
BATHROOM FITTINGS Towel rods, hangers Paper holders, soap trays			
CLOSET, WARDROBE HARDWARE Latches Hinges Light sliding door hardware Hooks, clothes holders Bads			
SPECIALTIES & SPECIAL-TO-ORDER TRIM  Decorative trim  Venetian blind hardware  Door chimes and knockers  Screen hardware  Drapery hardware			
OTHER:			



Operator 4703W, for heavy wood casements, embodies highest quality metals and workmanship. Its internal gearing was originated by, and is an exclusive feature of, The Getty Company. It operates through screens and on casements using but or extension hinges—as do all Getty operators.



Operator 4715 is an inexpensive angledrive operator for residential wood casements. It is precision-built, handsome of line, and lubricated for a lifetime of tough duty—as are all Getty operators.



Heavy duty reversible operator 4700 embodies the horizontal worm-and-gear principle. This low-priced, sturdy operator is interchangeable for left or right hand wood casements. It is easily installed —as are all Getty operators.



Lecking Fastener 4608W is ideally designed for screened wood casements. It locks and unlocks the window without disturbing the screen. Its graceful handle has minimum projection, assuring adequate clearance for Venetian blinds. It's one of a family of high-quality fasteners.



Automatic Closer 4649 pulls top of out-swinging wood sash snugly against the frame. It helps prevent warping, assures all-around tight contact. Easily installed—6 screws; no mortising required.



Extension Minge 2529 provides a 4" sash clearance for maximum ventilation and permits cleaning of the outside casement from inside the room. Firm corner support of sash is assured by flange-type leaf of cold-rolled steel, cadmium plated.



Operator 4703AF is exactly like 4703W but drilled to accommodate metal casements. Its internal gear construction is grayed for heavy-duty service on residential and commercial casements.



Replacement Operator 4706H, for metal casements, is the only replacement operator adaptable to nearly all metal casements. The specially drilled holes of this operator permit perfect installation on most metal frames, regardless of the type of operator being replaced.



Lecking Handle 4634½S
is made for metal casements. Its protective action and ample leverage
—characteristic of all
Getty fasteners—assure
perfect snugness and prost the elements. It's one of

tection against the elements. It's one of more than 50 different metal casement fasteners produced by Getty.

Getty Operators are found on more casement windows than all other operators combined.



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& Co., Inc.

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#### SIZES OF PACKAGED ALUMINUM NAILS

Size & Type of Mail	Mer. Meg. In Par Box	Coverage	Color of Box	Bores Par Carton	Site & Type of Mari	Mo: Mails Per Box	Coverage	Calor of Box	Boses Por Carton
bd Wood Siding—Sinker Hd. 7d Wood Siding—Sinker Hd. 8d Wood Siding—Sinker Hd.	\$76 \$78 \$78	500 bd. ft. ½" a 8" Bovol Sdq. 500 bd. ft. ½" a 8" Bovol Sdg. 500 bd. ft. ½" a 8" Bovol Sdg.	Dk. Blue Dk. Blue Dk. Blue	36 24	1%" Dri-Wall 1%" Dri-Wall	1530 1530	1000 sq. fr. 3½" Short Rock 1000 sq. fr. ½" Short Rock	Purple Purple	24 24
10d Wood Siding-Sinter Hd	290	250 bd. fr. 1/4" x 8" Bevel Sdg.	Di. Blue	24	11/6" Rock Lath	2666	35 square yards	Orange	16
6d Wood Siding—Casing Hd 7d Wood Siding—Casing Hd 8d Wood Siding—Casing Hd	575 576 575	500 bd. ft. 1/2" a 8" Bevel Sdq. 500 bd. ft 1/4" a 8" Bevel Sdq. 500 bd. ft. 1/4" a 8" Bevel Sdq.	Lt Blue Lt Blue	16 16 24	11/2" Rock Lath	7666 1900	25 square yards	Orange	16
11/4" Asbestos Siding	885 905	5 sqs. Ashastas S.dg. Face Natting 5 sqs. Ashastas Sdg. Face Natting	Red Red	48 16	2" Insulated Siding 31/2" Insulated Siding	1680	5 squares 60 Buttress Corners	Maroon	16 24
11/4" Ashastos Shingle 11/1" Ashastos Shingle 13/4" Ashastos Shingle	885 885 885	5 sqs. Asb. Sdq. Conc. Neiling 5 sqs. Asb. Sdq. Conc. Neiling 5 sqs. Asb. Sdq. Conc. Neiling	Pink Pink Pink	48 36 24	%" Roofing I" Roofing IV4" Roofing IV2" Roofing	960 980 980	500 sq. ft, Roll Roofing 3 squares Sq. Tab. Shingles 3 squares Sq. Tab. Shingles 3 squares Sq. Tab. Shingles	Green Green Green Green	36 36 24 24
11/6" Cedar Shake 11/6" Cedar Shake	1600	1 sqs. Single Course 1 sqs. Double Course	Brown Brown	36 24	1 1/4" Roofing 2" Roofing	980 980 650	1 squares Sq. Tab. Shingles 3 squares Sq. Tab. Shingles 2 squares Sq. Tab. Shingles	Green Green	16 16
1d Cedar Skingle	3150	1 sqs. with 5" Exposure	Lt. Gen.	24	21/2" Roofing	-		-	-
%" Standard Shingle 1d Standard Shingle	7600 2000	General Purpose Barn Battens, Joist Lining, etc.	Yellow Yellow	16 24	1 1/4" Ruofing w/w/attached 2" Roofing w/w/attached	1050	10 sqs. aluminum roofing 10 sqs. aluminum roofing	Brite Red Brite Red	10

(Continued from page 158)

and hangers, assist bars for bathtubs, all should be in keeping with the modern feeling of making the bathroom one of the display points of the house. Such accessories are available in chrome-plated brass, porcelain enamel, and ceramic tile. Only good quality materials should be chosen and carefully installed.

Closet and wardrobe fittings have come a long way in recent years from the simple hanger rod and clothes hooks of past generations.



Bathroom accessory hardware can add greatly to the beauty of the bathroom. Chrome-plated accessories are popular

Pull-out rods open up for selection of garments and retract for compact storage. Tie racks, shoe racks, skirt and trouser hangers, hat holders and similar accessories keep clothes neater and add to garment life. Closet and wardrobe design may be tailored exactly to the owner's desires, and limited only by the customer's purse.

## Garage Door Hardware and Fittings

Garage doors may be simply hinged, of the rolling type, or of overhead construction. Hinged doors are the most economical to install; sturdy hinges and latches should be used.

Rolling and sliding garage doors offer several advantages over folding doors. Hangers, track sections, latches and locks permit long-lived installations free from maintenance problems. Special track sections resist rain and ice. Hangers adjust for possible sagging of doors or settling of foundations. Stops, guides, and track hangers permit installation in any type of material, inside or outside. Lock mechanisms provide full security, and guide rollers insure smooth operation.

The overhead type of garage door, because of its economy of space, has become increasingly popular. Hardware design has made possible the use of this type of door. Spring counterbalances minimize effort, so that doors are raised or lowered at the touch of a finger. Track and roller units eliminate jamming and binding, Garages for high-cost homes may have motor-operated garage doors, and garage door control by photo-electric eye or radio-actuated mechanisms has been brought within the range of commercial installation.

#### Specialties and Special Order Trim

Hardware specialties include such items as door chimes, venetian blind hardware, curtain hardware and drapery fittings.

Picture windows dictate the use of drapery traverse hangers, which may best be installed by the builder. Consultation with the lady of the house will direct the style of hanger, finish, etc. In similar fashion, tie-backs for curtains, venetian blinds and accessories, door chimes, and other hardware extras can mean added profits and good will.

#### Nails, Screws, Fastening Devices

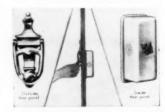
The array of builders' hardware items—screws, nails, anchors, bolts, nuts, and so on—is almost enders and is so well known that it needs little mention here.

The use of aluminum nails in exposed woodwork to eliminate rust streaking is fast becoming standard practice in siding installation. The relatively slight additional cost is negligible compared to the improved appearance and the value of these nails as a sales point, Other specialapplication nails, are drive screws and clinch nails for shingles and wallboard, and special nails for acoustical tile which eliminate damaging of the tile face.

Again, there is a vast variety of form clamps, form ties, and other form hardware. The builder uses form ties that his workmen are accustomed to and that he has found efficient. Such devices are constantly being improved and new types offered, and the alert contractor will keep abreast of all such developments.

Bolts and nuts, washers and screws—these are all pretty much standard. But the manufacturers are giving new twists to old materials—improved

(Continued on page 168)



Door knocker actuates chime on inside of door mechanically, no electrical connections being required. Installation is quick and simple



Door chimes have strong sales appeal. Typical models use one-chime unit to serve both back and front doors



sparkling beauty, lifetime quality, economy and sensational new style construction.

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The Major's obsession was to make an impression, With his etchings and tales of yore, But his best impression was made by the possession, Of a TEGCO GLASS KNOB on his door.



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so condensation won't occur, and much more. Insulation expert Tyler S. Rogers writes clearly and simply. Every major point is graphically explained to you in illustrations, diagrams and sketches. This working manual can easily be worth hundreds or even thousands of dollars when you need insulation facts in a hurry. 120 p. 262 illus, 9 x 12. cloth, \$5.50



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chool buildings. 456 p. 1000 il. index, 81/2 x 12, \$8.00



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transportation systems, turniture and fix-tures, receiving and shipping facilities, floor and department layouts, display arrange-ment and lighting, and much more. Dia-grams, charts and scale drawings, from hundreds of leading stores, prove each point graphically. It covers every detail of modern stores. You can use it for remodeling obsolete stores, too, 300 p. over 500 illus, index. 8½ x 11. cloth, \$10.00



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#### The Last Lath

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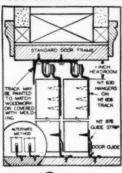
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Much Faster and Easier Installation

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Engineered to Last For Many Years

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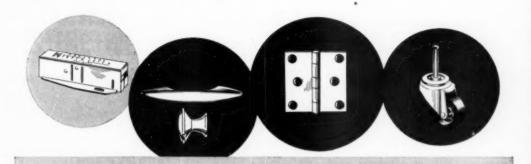
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Proven popular, this fine item for use on wood cabinets opens doors automatically with gentle touch of finger, wrist, elbow or knee. Easily installed. It's hidden from external view when door is closed. Inexpensive to purchase, profitable to sell.

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A broad line of quality builders hardware. Butts, hinges, sash lifts, sash locks, barrel bolts, continuous hinges... everything you need, available from one dependable source.

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Look to National Lock to fill your caster requirements. An extensive selection of all types is promptly available. Packaged in sturdy cartons,



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NATIONAL LOCK COMPANY



#### NAIL REQUIREMENTS PER 1000 FEET OF BUILDING MATERIALS

Size and kind of Material	Board measure in ft.	Trade name	12° centers	Nails Re 16" centers	24° centers	Longth of nails	No. of mails to on bearing
s 4 Boards and Shiplep	1000	84 common	60	48	30	2%*	2
s 6 Buerds and Shiplep	1000	84 common	40	32	20	21/2"	2
w 8 Boards and Shiplap	1000	84 common	31	27	16	21/2"	2
a 10 Boards and Shiplap	1000	84 common	25	20	13	21/4"	2
s 12 Boards and Shiplep	1000	84 common	38	24	16	215"	3
n 4 D & M Blind Norled	1000	84 common	30	24	15	31/2"	1
2 6 D & M Blind Nailed	1000	84 common	20	16	10	21/5"	1
# 5 D & M Blind Nailed and 1 Face Nail	1000	84 commen	31	27	16	21/2"	2
s 10 D & M Blind Neiled and 1 Face Nail	1000	84 common	25	20	13	21/2"	2
s 12 D & M Blind Nailed and 1 Face Nail	1000	84 common	21	16	11	25/2"	2
x 4 to 2 x 16 Framing	1000	204 common 164 common 104 common	20 10 8	16 10 6	10 6 4	31/5"	=
# 4 to 3 # 14 Framing	1000	604 common	30	25	15	6"	-
a 6 D h M Flooring	1000	384 common	35	27	10	4"	3
a 8 D & M Flooring	1000	204 common	27	20	14	4"	1
s 4 Drop Siding	1000	74 siding	45	35	-	21/4"	2
a 6 Drop Siding	1000	76 siding	30	25	-	214"	2
x 8 Drop Siding	1000	74 siding	23	18	-	31/4"	2
s 4 Bev. Siding	1000	&4 siding	23	18	-	2°	1
s 6 Bev Siding	1000	64 siding	15	13	-	2"	1
a 8 Bev. Siding	1000	64 siding	12	10	-	2"	1
a 10 Bev. Siding	1000	7d siding	45	15	1	215"	2
a 12 Bev Siding	1900	74 siding	60	50	-	214	1
a s 4 Ceiling	1000	84 Finish	18	14	9	215	1
to % Ceiling	1000	64 Finish	11	8	6	2"	1
a" Firmsh Lumber	1000	ed Finish	25	12	13	215"	7
'a" Finish Lumber	1000	10d Finish	12	10		3"	7
	1000	88 Floor	42	32	21	315"	1
x 3 Flooring, soft wood	1000	Brads 8d Floor	32	26	16	21/2*	+ ;
t v 4 Floring, soft wood	1000	Brads	32	10	10	2.12	
1 x 6. Floreing, wift wood	1600	Hd Floor Brade	22	18	11	214"	1
"A x 11/2" Flooring, hard wood	1000	4d Casing	13	10	-	114"	1
x x 2 Flooring, hard wood	1000	4d Casing	11	8.		11/4"	1
a 112 Flooring, hard wood	1000	76 Casing	27	20	-	2%*	1
(A a 2% Flooring, hard wood	1000	74 Casing	30	14		21/4"	1
1 x 2" Furring on Brick Walls !	00 Lineal Ft.	- 204 Cut Nails,	Requires	51/4 Lbn			
Dase, per 100 Lineal Ft.		8d Finish	Require	es I lb. I	6' on Ce	enters.	
Sides of Trim, per side of inside	tom	4d Finish 6d Finish nd Finish	Require	n about	V <sub>k</sub> th. To	tal	
45° WOOD LATH, per 1000 let	34 Fine	Require	e 7 lbs.				
METAL LATH, per 100 Sq. METAL LATH, per 100 Sq.		1" Steples, Re	quires 12 look Hee	Ibs. 5 Nails, I			
86' GYPSUM LATH, per 100 S	11%" s 13 Geo 1 Smooth Diam		**	,			
%" PLASTER BOARD, per 10		1" z 13 Gouge Smooth Diam		. ,		ID Ibs.	
" WALL BOARD per 1000 S	q. Ft.	34 Flat He	ad Nail, F	gedanes ;	5 Iba.		
14" WALL BOARD, per 1000 S	q Ft.	44 Flat He	ad Nail, I	Requires 1	9 Ibs.		
"s" WALL BOARD, per 1000 S	a. Ft.	44 Flat He	ait Mail 1	Requires !	9 1hs.		

Table above from National Handbook

(Continued from page 162)

thread designs, lock washers and clamp nuts, screw heads which are more efficient with power screw drivers, etc. These are all little things but in a year can add up to many dollars saved through selection of the latest and best.

Both drywall construction and metal lath with plaster in hollowwall construction have brought forth a wide array of special fastening devices, clips to hold the lath or panels in place, channels to contain top and bottom of panels, spring-type slips to provide the basis for resilient hollow-wall and panel construction. Techniques for application vary from the simple hammer and poundingblock to fastening some types to the underside of the panels with mastic or cement paste developed for the purpose.

#### Time Savers

In addition to the rapid advance

in both builders' and finish hardware, manufacturers have also developed numerous small tools, jigs, and fixtures designed to speed the application and installation of their particular hardware items.

Lock manufacturers have brought out precision-engineered jigs which clamp on quickly to door and frame and assure perfect right-angle holes for proper lock fit. Boring kits and mortising tools are also available from lock manufacturers.

Many of the manufacturers of special builders' hardware items such as special clips and fasteners for the attachment of wallboard have also developed special tools for the application and installation of their products. Such instances are numerous. Asbestos siding shingles for instance, would be expensive to apply were it not for properly designed. efficient cutters for this material. Copper tubing installations have been made cheaper and better because the tubing manufacturer has also developed the tools for cutting, flaring, and attaching the tubing to fittings. The thin wall electrical conduit system would be impractical and expensive were it not for the special connectors, fasteners, and bending and fastening tools provided for working with this material.



Through frequent use, Bill has learned it saves him time and money. It's practically an encyclopedia of the building business—it gives you building informetion and buying information—easily and quickly, when you need it.

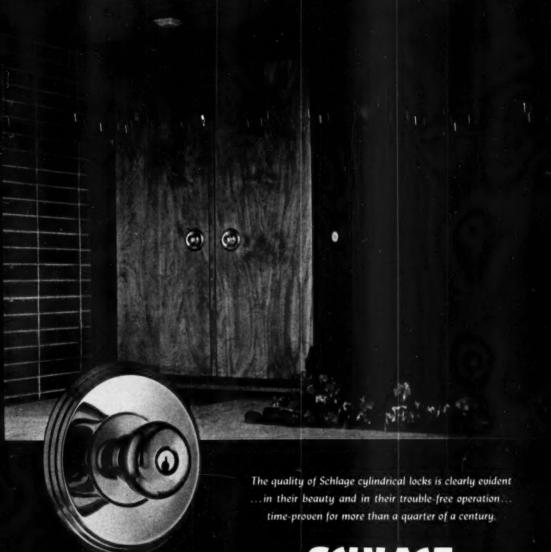
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#### NOW YOUR CLIPPER IS "CONVERTIBLE"!

At any time the cutting head of your M Capt...you're ready to saw concrete or asphalt patches or trenches. No more fractures beyond removal lines -- no spalling! But there's more ... just set the CART on TRACKS and operate as a TRACK SAW on ston slabs. The Clipper "CONVERTIBLE





CLIPPER MANUFACT	
☐ DUSTLESS Model HD	CLIPPER CONCRETE SAW
ADDRESS	
CITY	STATE



INDOOR CUTTING SHOP OF CONTRACTOR. Workman at left uses power plane; at right, door is mortised for lock; third workman rabbets for butts with router. Power tools speed work and cut costs

IT IS impossible to think of the building industry without considering the great variety of tools necessary to building work. From the stone hammers and flint axes of primitive peoples have developed the hundreds of tools now in everyday use.

## PURPOSE AND DESIGN OF TOOLS

The primary purpose of any tool is to extend the ability of the worker, to let him work more efficiently, or to do work that would otherwise be difficult or impossible. A rock may be used to hammer nails, but a hammer is more efficient, and a power nail-driving machine extends the ability of the worker many-fold. A worker could possibly bore holes with a crude piece of metal sharpened at one end, but a carpenter's bit and brace make this a matter of minutes (or a power Irill, seconds), with a precision otherwise impossible.

Modern low-cost building methods would be impossible without today's tools. Sawing, digging, drilling, pipe threading, and countless other operations are accomplished with production tools at a fraction of the cost of obsolete methods. The tool which finds acceptance is the one that does the job more easily. Tools which take the least muscular effort, are most convenient in operation, and require the least adjustment in use are always preferred.

Safety is one of the most important factors in tool design. Saw guards, ground wires and efficient insulation for electrical tools, the use of quality steels to prevent chipping of hammers, drills, and chisels—these are typical of the added safety built into tools today.

Constant improvements in tool design improve the quality of the work. Power woodworking tools make every carpenter the equal of yester-



THE POWER HAND SAW is one of the most useful tools. Workman is shown making angle cuts on rafters at the job site

**APRIL 1952** 





WORKMEN USING POWER SANDERS to finish doors. Power drill press with auxiliary oversize table is shown in the background

day's most skilled and painstaking craftsmen. Abrasive wheels for cutting brick and tile let the mason do neater, stronger work. Power threading machines for the plumber and steamfitter give more uniform threads and make them less likely to leak. Cement vibrating and finishing machines help to produce a denser, harder surfaced concrete.

"The right tool for the job" is an axiom so old that it hardly needs repeating. No one would use a sledge to drive finishing nails, or a keyhole saw to cut a 6 by 6 timber. Tools are now tailored to fit the particular job. Only by getting the tools best suited for the work can the greatest economy and efficiency be realized.

As important as the selection of the correct tool is the proper maintenance after it is put in use. Power equipment should be lubricated at the intervals recommended by the manufacturer; saws and all other cutting tools should be kept sharp; adjustments for wear, as of pipe dies, should be made as soon as necessary; and dirt, abrasive materials, or other materials which would cause excessive wear should be removed from tools

HAND POWER DRILLS are versatile tools finding constant use. At left, holes are being bored in mudsills. Right, two models of power drills

promptly to avoid future trouble.

#### HAND TOOLS

The basic hand tools in daily use in the construction industry are, in form, much the same as for the past three or four centuries. The carpenter uses the saw, hammer, try-square. level, auger and brace and bit. The mason uses the trowel, line, brick hammer and chisels, and level. The laborer's basic tools are the shovel. pick, and sledge. The plumber depends on wrenches, cutter, reamer, stock and dies. The electrician uses pliers, soldering iron, and so on, All of the basic hand tools are so much a part of the work that little thought is actually given to their design, or to the slight but important improvements that have been made throughout the past few years. New steels have improved the quality of saws and chisels; aluminum levels are less likely to break, and are easier to handle than those of wood; plastic handles for tools wear and feel better than wood ones; and in many other little ways hand tools are better today than in the past. In general, it pays to get the best-quality tools,

higher first cost is soon offset by the added life, better work, and ease of use of quality tools.

The contractor must have an adequate supply of tools for the greatest number of men he will have working at any one time. If there are six laborers on the job but only five shovels, one man will stand idle. But it is not sufficient to have just enough; even with the best of care, tools will break or become worn in use, so it is necessary to have reserve tools on hand to take care of breakage, or waiting periods, as when one saw blade is being sharpened.

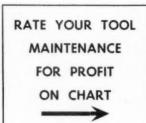
Keeping track of tools can cut to a minimum the losses from pilferage and carelessness that are inevitable. The good worker will not walk away and leave his tools lying about, to be picked up by others or just carelessly lost. A system of tool checks for tools taken out of the shanty, the branding or stamping of tools with the company name or initials, and the safe locking up of tools at night, and when not in use, can all help to reduce tool losses.

#### HAND POWER TOOLS

The list of power tools for hand use on construction work grows almost daily, as manufacturers develop new designs. The following are among the more common:

#### Drills

Electric hand drills are made in perhaps a greater variety than any other hand power tool; one manufacturer lists 27 different types of 1/4inch drills alone. Sizes of electric drills are from light 316 inch up to heavy 1-inch drills (for steel). Pistol grip, spade handle, and other styles permit selection of type to job. Speeds are variable in different models, from around 2000 rpm for small drills down to 200 to 300 rpm for larger sizes. Key type checks are almost universally used, as their greater gripping power offsets their slight additional cost as compared to hand chucks. Choice of a drill is first on size of work to be handled; second, the type of work will dictate the (Continued on page 176)







There's a complete line of portable Stanley Routers from  $\frac{1}{2}$  to 3 h.p.—each designed and powered to do the job right.

H88A ½ h.p., 20,000 r.p.m. R8A ½ h.p., 20,000 r.p.m. RSB0 ½ h.p., 20,000 r.p.m. RSB 1 h.p., 18,000 r.p.m. RSB 2 2 h.p., 18,000 r.p.m. R33 3 h.p., 18,000 r.p.m. Jobs
like this
show why
we're sold on
STANLEY ROUTER

H. B. SANSON, INC., West Hartford, Conn. Cabinet Makers, step up efficiency with these versatile tools.

ARCHITECT

Mr. H. B. Sanson says, "Hand cutting the stringers for this circular stairway could have been a slow and tricky task. But with a Stanley Router and a handmade template we made precision cuts quickly and easily—at a big saving of time and 'muscle'."

"Wherever possible we use Stanley Routers . . . and the more we use them the more we save. They're important members of our building crew."

And it's for these same reasons—time and money saving—that more and more profit-minded contractors use Stanley Routers for all kinds of smooth, finished cuts. Use them on "specials" like this circular stairway and to put speed and precision into everyday jobs—mortising for hinges, edging stair treads, doors, panels, dovetailing, shaping, beading and fluting, and many other types of work limited only by the user's ingenuity.

See these cost-cutting Stanley Routers in action at your dealer's or write for descriptive literature to: Stanley Electric Tools, 400 Myrtle Street, New Britain, Connecticut.

(STANLEY)

HARDWARE . TOOLS . ELECTRIC TOOLS . STEEL STRAPPING . STEEL



## Tool Maintenance Is Profitable

How Good is Yours	yes	more or less	по
<ol> <li>Do you have and use a regular, systematic schedule for inspection of all tools, both in the shop and on the job?</li> </ol>			
Do you have a regular schedule for the lubrication of all power tools and moving machinery?			
3. Do you have a systematic routine for cleaning tools, both at the end of the day's work, and upon completion of the job?			
4. Are tools protected against sand, dust, grit, dirt, and other abrasives?			
5. Are tools having variable speeds always operated at the correct speed for the work being performed?			
6. Do you have a regular procedure for instructing each worker in the proper use, purpose, and care of the tools he uses?			
7. Do you impress each workman with the importance of keeping his tools in proper condition?			
Are you certain that each tool and machine is used only for work it is designed to handle?			
9. Are tools shut off when not in use?			
10. Do you have the instruction books, service manuals, and other information provided by the manufacturer on hand, and available to foremen and workmen?			
11. Do you have a clear-cut system for ordering repair parts, checking to see that they are delivered, and installed in the tools needing them?			
12. Do you have a manufacturer's representative or service man call regularly, at least once a year, to check tools for wear and proper maintenance?			
13. Are all the workmen instructed to report promptly any defects in operation of the tools they use?			
14. Are tools not in use on the job stored securely in the shop, properly protected against corrosion, moisture, fire, and theft?			
15. Are tools moved promptly from one job to another, so that tools needed at one job are not sitting idle, and does each job have the tools best suited for its needs?			





Black & Decker



TOOLS

The Black & Decker Mfg. Co., Dept. H-666, Towson 4, Md.

Look what Black & Decker Saws give you!

- Easy Handling
   Fast Adjustment
   Maximum Safety
   Job Versatility

- protan Pricesi
  ' Heavy-Duty ... \$56.50
  ' Beluxe Heavy-Buty ... \$7 ' Heavy-Duty ... \$72.50

See Your Building Supply Bealer for a convincing demonstration of Black & Decker Saws and Blades and hardy, new Protestor, Learn bow they pay for themselves in a few jobal WRITE FOR FREE CATALOG.



POWER DRILLS are available in a variety of sizes and types. Right is shown low speed, lightweight drill geared down to 450 r.p.m. for drilling steel, glass, brick and other hard materials. Left is a drill-hammer for masonry. The bit both hits and rotates at the same time, and has '4 to 34-inch drill capacity

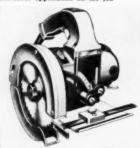
(Continued from page 172) speed of operating; third, the question of intermittent or continuous use may be a factor in the cost. Drill hits must be matched to the work. Drill points for metal are not suited for continuous wood drilling. Different drills may be had for wood, steel, alloys, glass, marble, concrete, and ceramic tile. Drills must be properly sharpened, and it will usually be found that this is better done by one man skilled in this operation, rather than letting each worker sharpen his own.

#### Saws

The light, easily handled electric hand saw is one of the most common on-the-job power tools today, and it is doubtful if any other power tool has resulted in a greater saving in time and cost in construction work. From the setting of forms to final trim, carpenters are working better and faster with powered hand saws. Most common sizes are those using 6-inch and 8-inch blades, handling 1-inch stock and 2 by 4's with ease, although hand saws taking blades up to 12-inch diameter can be had for larger timbers. Built-in guards cover the blade at all times except where the saw is actually cutting, and "dead man's" switches prevent operation of the motor unless positive pressure is applied to the switch, so that the saw



A TYPICAL HAND DRILL having almost universal application on the job



TYPICAL HAND POWER SAW, with 61/4-inch blade. Operates at 5300 r.p.m. An adjustable rip scale drive is built in. Note also protective guard and adjustment for bevel cuts

cannot be left running unattended. Some models have a tilting shoe for cutting bevels, and others have provision for attachments converting the hand saw to bench use, or for work as a radial saw.

A variety of blades are available: combination blades for general use, both cross-cutting and ripping; carbide-tipped blades for heavy duty use, and where nails may be encountered; abrasive wheels for cutting of brick, tile, light metals, and dado heads.

#### Sandar

Three basic types of sanding machines are in common use. Belt sanders, having a continuous belt of abrasive material passing over two rollers, and drum sanders, in which a band of abrasive is attached to a revolving drum, are suitable for production work on relatively large areas. Disc sanders, in which a disc of abrasive material is attached to a rotating rubber pad, enable the worker to get up to the edges of walls, and to operate in other "tight"



CUTTING WITH HAND POWER SAW.
A portable electric generator supplies current for locations away from power limes

places. Reciprocating or oscillating sanders, in which a flat sheet of abrasive moves backward and forward, or in an oscillating movement. are convenient for small areas, for smoothing dry wall seams and other similar work. Any sander selected should have adequate power for the work, should use standard size belts, sleeves, discs, or sheets; should have adequate protection of the motor bearings and moving parts against the entry of dust and abrasive grit. Manufacturers' recommendations should be followed as to the type of abrasive which should be used for different surfaces. Many different grit sizes, bonds, and cutting materials make the power sander most versatile for all finishing operations.

#### Grinders

Hand grinders may be of the selfcontained variety, or may operate from a flexible shaft. For preparing work for welding, dressing down exposed welded joints, smoothing exposed concrete surfaces, finishing stonecutting operations, the hand grinder is invaluable. When fitted with the proper wheel, a flexible shaft grinder can be clamped in a vise to pinch hit for a bench grinder in sharpening tools.

(Continued on page 180)



POWER PLANE shown does the same work as carpenter's plane, cheaper and better than by hand







THREE HAND SANDERS FOR FINISHING OPERATIONS. The unit at left operates with a reciprocating motion, using sheet sandpaper. Center is belt type, for larger areas. Right is an orbital type, in which the abrasive is moved in a circular motion



... for all portable electric hand saws

Now your circular saw dollar buys faster, cleaner cutting and longer useful life than you ever thought possible in these days of rising prices. The new Disston line is priced to make it the *leader* in value... designed to make it the *leader* in performance!

New efficiency in combination sawing: The new Disston style W Combination Saw sets a new standard of cutting efficiency. It is of a radically different design, based on advanced principles... the result of fundamental research by Disston engineers aimed at meeting the demand of portable electric hand saw industry for a combination blade that would cut faster and cleaner... stay sharp longer... yet put less strain on small motors.

Disston Circular Saws are made in all tooth types—cut-off, planer, flooring and combination—with center holes to fit all popular makes of portable electric hand saws. Each is individually packaged and has etched plainly on it the name and model number of the machine it fits. You can be sure you have the right blade for your saw when you buy a Disston!

ASK FOR DISSTON SMALL CIRCULAR SAWS AT YOUR CONTRACTOR SUPPLY OR INDUSTRIAL SUPPLY HOUSE

#### HENRY DISSTON & SONS, INC.

422 Tacony, Philadelphia 35, Pa., U.S.A. Canadian Factory: 2-20 Fraser Avenue, Toronto 3, Ont.



## New Production Line Economies





RADIAL SAW This new 16° Delta Radial Saw cuts through the entire 360° at every conceivable angle. All cuts are made above the work table, in clear view. For miter capacity and extraordinary versatility, this saw truly has no equal. Also available on 8°, 10°, 12° and 14° models.

## DELTA



CIRCULAR SAW Mass production ripping is exceedingly simple on this massive, rugged, big-capacity Delta 12" tilting arbor saw. Its accuracy is built-in for long years of usefulness. For dependable performance and operating economy, there's nothing finer. Also available in 10" and 8" models.







JOINTER The long work table on the Delta 8" Jointer makes it an ideal tool for easy handling of long boards. The special 4-knife cutterhead is 33% per cent faster than a 3-knife machine. Making true "finish" cuts fast eliminates extra operations. Also available in 6" model.

BAND SAW Ideal for all curve cutting and taper work, the Delta 20" band saw is exceedingly fast, safe to use and most economical to operate. It will cut one piece at a time or many stacked pieces—with perfect accuracy. Also available in 14" and 36" models.

PLANER For converting rough lumber at high speed, the Delta 13" x 5" planer is an important money-saver. Rugged, safe, amply powered, it does a precision job on any stock from 13" x 5" boards to 6" pieces unbutted. No kick-back. Also available in 24" x 8" model.

# and Profits Can Be Yours-with

Precutting framing, doing your own millwork, building cabinets, streamlining lumber handling in Delta-tooled shops are definitely reducing building costs today!

More and more alert builders are finding in Delta's "Big 5" Machines a dependable means to cutting costs and increasing profits. The built-in precision accuracy of these fine tools, their durability and remarkable low-maintenance records, their superior safety features-all these make the "Big 5" ideal equipment for a central shop or on-the-site installation

### Here's How You Can Save Money USING THE DELTA "BIG 5"

- Straight-line, low-cost handling of lumber.
- Precut lumber into ready-to-use shapes for high speed
- Re-work material for special uses—salvaging scrap, eliminating waste.
- Modernize job operations; Delta tools pay for themselves quickly, reduce your tool investment.
- · Do more operations with fewer machines Delta accessories are a big help.
- Save valuable space because of Delta's compact designs.
- Cut operating costs to a minimum-Delta machines are economical to run.
- Handle more work in less time—means you can build more houses at bigger profit.

All these cash advantages can be yours-and the way to find out "how" is to talk with your Delta dealer. He's thoroughly familiar with your production problems. Also send for the full specifications and descriptions of the "Big 5." Use the coupon.

There's a Detta Power Tool for Your Job-WOOD OR METAL WORKING

53 MACHINES . 246 MODELS . MORE THAN 1300 ACCESSORIES

For Delta Dealers, see your Classified Phone Directory under "Tools",

### Only in Delta Tools can you get these EXTRA QUALITY FEATURES

AT NO EXTRA COST

- 4-belt drive on 12" tilting Light-weight Delta tools arbor saw provides constant, even power-flow-no loss through slippage
- Double worm-gear reduction drive on Delta 13" x 5" planer automatically lubricated-means years of \* Special pre-loaded, trouble-free service
- Delta finger-tip controls in instant reach - safety switches reduce accidents
- Delta's tables are massive, heavily ribbed, precision ground - accurate!
- controls make operation

- are tops for mobility
- · All Delta's pulleys are dynamically balanced-less vibration and bearing strain mean longer life,
- sealed and lubricated-forlife ball bearings assure confinuous accuracy
- Delta's motors are rugged, powerful, to NEMA standards, backed by nationwide service
- Delta's handy up-front . Delta took have safety guards that protect!





HEAVY DUTY FLOOR SANDERS using a revolving drum to which sandpaper is fastened. Finishing or refinishing may be done cheaply with modern sanders

(Continued from page 176)

The selection of the correct wheel for grinding operations is often neglected; workers will use any wheel in the grinder, rather than change to the correct wheel. Foremen should see that a wheel for rough dressing of concrete is not used to sharpen tools, for example.

Grinders are more susceptible than any other tool to damage from dust and grit. Selection of tools which are adequately protected, and regular cleaning and lubrication are "musts" with grinding equipment.

#### Planes

Power-driven planes have been welcomed by builders for trim and finish carpentry work. They make the hanging of doors and windows, fitting of cabinets and trim woodwork a fast and easy job. The power plane is essentially a hand-held jointer. A revolving cutter head with three knives is fixed in relation to a base plate which may be adjusted to control the depth of cut. Also, an adjustable guide may be set to make accurate bevel cuts.

The power plane will usually be handled only by the one or two men doing the trim work, and they should be responsible for its care and maintenance. Blades should be sharpened immediately upon signs of dulling, and extra blades should be kept on hand if sharpening is not done on the job.



POWER HAMMER ABOVE OPERATES BY AIR PRESSURE of 30 to 100 pounds, and has no kick when held against the work

#### Hammers

All of the building trades find the power hammer a great saver of time and money. For breaking out concrete, drilling holes for inserts, notching heavy timbers, setting expansion plugs, hammers do in minutes work that would otherwise take hours. Lightweight, small units permit work in spaces too small to allow a chisel and sledge.

The severe vibration of the electric hammer makes the most rugged construction necessary for these tools. Shock-absorbing drive linkages added to the design have lengthened tool life greatly over the earliest units. Quality should not be sacrificed in the purchase of these tools.

Many different tool bits for electric hammers permit the most efficient use for each job. Carbide-tipped drills for holes, special steel chisels for wood and bull points for breaking concrete, all speed up the job and make possible top efficiency.

#### Routers

The portable hand router, like the hand planer, lets the trim carpenter do faster, more accurate work. Rout-



HAND ROUTER to rout for hinges, uses a special template. The use of templates assures a perfect fitting hinge



LOCK MORTISER speeds job of installing and eliminates possibility of damaged doors

ing for locks and hinges, on-the-job fabrication of mouldings and similar work is made quick and simple with the hand router and appropriate jigs.

The hand router is ordinarily supplied with adjustable guides for straight and curved work, and has provision for controlling the depth of cut. Routing cutters and collars are supplied as needed, and special jigs for hinges, locks, etc., can easily be made as needed.

A special type of routing machine, the lock mortiser, makes quick work of what was formerly a slow job. Once set in place on the door by a jig, the actual cutting of the lock mortise takes as little as 30 seconds.

#### Power Screwdrivers and Nut Runners

Sheet metal workers, carpenters, iron workers, and other trades on jobs requiring driving of many screws or nuts of the same size will save money and manpower with electric tools for driving. The power tool drives screws and nuts faster and better than by hand, and is less likely to damage work by slippage. Typically, power drivers are fitted with interchangeable bits or sockets for different sizes, and have an adjustable

(Continued on page 185)



ABOVE A PORTABLE NAILING HAM-MER that rapidly drives 18-gauge 7: inch staples into soft or hard wood with one blow of the fist or a rubber mallet. Easy loading, positive feed and drive assure rapid operation

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Famous for "MORE MOTOR GUTS"

## Mitering Power Saws :

61/2" and 81/4" blades

Deeper Vertical and Bevel cuts than other saws of the same diameter.

61/2" model miters 2" dressed lumber at 45°.



3-Speed, 1/2", 9 lb. wt.

## Hole-Shooter

for BOTH straight and rightangle drilling.

Bores up to 3-inch diameter in wood.

Write for complete information... Folder SD-11.

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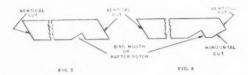
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## Radial Arm Saw Techniques

#### NOTCHED RAFTERS

The most efficient manner in which to cut the rafter shown in Fig. 5 would be to have two radial arm saw machines in line—one with a saw blade on the arbor and the other with a rafter notching head. The arm of the first machine would be set at the angle required to make the vertical cuts. The second machine would be set so rafter notching head would be at the angle of the notch, or bird mouth. The vertical angle of the bird mouth is the same



as the vertical cut, If the angle is 22 degrees 37 minutes (5/12 pitch), the motor would be beveled 22 degrees 37 minutes from the vertical.

Material is laid flat on the table and moved to the first machine where the first vertical cut is made. Then material is moved to a swinging stop for the second vertical cut. Material is turned on edge and moved to second machine where the notch is cut. An example of this cut is shown in Fig. 7 below.

If only one machine is used the best method to follow would be to make all the vertical cuts and then stack the material. Change the blade for a rafter notching head and cut the required notches.



To make cuts shown in Fig. 6, above three machines should be in line—two equipped with saw blades and one with a rafter notching head. This arrangement produces best results. The first machine should be set up to make vertical cuts, the second to make horizontal cuts, and the third machine to make the notch or bird mouth.

If only one machine is used, vertical cuts are made first and the material stacked. The arm of machine is then swung through to the angle of the horizontal cuts and these are made. The blade is taken off the machine and replaced with a rafter notching head to make the notch.

With one machine, and using only a saw blade, the vertical cuts are made first, and then the horizontal cuts. With the material on edge, the plate cut of the notch is made. The fourth time through, the vertical cut of the notch is made.

With two machines available to make the cuts shown in Fig. 6, above, it is suggested that the horizontal and vertical cuts be made first. Then, using the method that applies to the equipment available, cut the notches.

#### MITER CUTS





The miter cut shown in Fig. 8 is made with the arm of the machine turned to the angle of the cut. With the arm turned, two pieces of material laid flat, one on top of the other, can be cut at the same time.

If material is placed on edge the arm is left in normal position and the saw blade is set at a bevel, shown in Fig. 9. As many as eight rafters can be mitered at one time in this manner.

To make the compound miter bevel the saw is set at 45 degrees. Swing the arm to the angle of the plumb cut, and with the material laid flat, make the cut. This method is shown in Fig. 10.

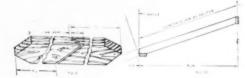
The stop shown in Fig. 11 is the recommended type for





miter cutting. It will prevent material from resting on the point or sharp edge while the cut is made.

Time and labor can be saved if cuts are laid off to make the jacks into pairs at each cut. This is done by starting with the short right hand jack and the long left hand jack. Stops are set according to the increment of increase (see table "Spacing of Increment"). This method uses a nearly constant length of lumber. When short and miss cuts are used, figure out the pair of jacks required and rip material into usable jacks. In making layout allow 5/32 inch for saw kerf. See Fig. 12.



#### ROOFING TABLES

Desired length = Run x Factor of Riss - 1/2 inickness of Ridge

Rise in Inches Per Foot of Run	Angle of Common & Jack Rafters	Angle of Rip & Velley Rafters	Pactor of Length I For common Rafters	Pactor of Length I For Hip & Valley Befters	Table of Spacing of Increment Of 16° o.c.	Increase On Jack Hafters 24° o.c.
45	180 265	137 141	1,0541	1.4530	16 7/8*	25 5/16°
44"	20° 331	240 501	1,0680	1.4631	17 1/16*	25 5/85
< 4	220 391	260 230	1,0833	1.4743	17 5/16°	26*
56×	249 371	170 561	1,1000	1,4866	17 5/8"	26. 3/8*
6.0	260 341	290 261	1.1150	1,5000	17 7/8*	26 13/16
66"	280 271	200 551	1,1373	1.5346	18 3/16*	27 5/16"
70	300 15*	22" 231	1.1577	1,5298	18 1/20	27 13/16
74×	120 -	230 481	1,1792	1.5462	18 7/84	28 5/16"
g#	330 421	250 121	1.2019	1,5635	19 1/4*	28 7/8*
840	360 391	260 320	1,2255	1,5817	19 5/8*	29 7/16"
94	367 521	270 54"	1.25	1,6008	20*	30 °
94.	389 221	290 121	1.2754	1,6207	20 3/8"	30 5/8*
10*	300 781	30° 281	1.3017	1.6615	20 13/16*	31 1/40
104*	410 110	310 42"	1.3288	1,6630	21 1/4"	31 7/80
11"	420 311	320 561	1,3566	1,6853	21 11/16*	32 9/16*
116"	430 471	340 51	1.3851	1,7083	22 3/16°	33 1/49
12"	450 -	350 131	1-4142	1.7321	22 11/16*	33 15/16
1.26"	460 101	360 201	1.4440	1.7564	23 1/8*	34 5/8"
13*	470 271	370 24"	1.4743	1.7815	23 9/16"	35 3/8"
136*	€80 22°	380 274	1,5052.	1,8071	24 1/16*	36 1/8*
14"	490 241	390 261	1,5366	1.8333	24 9/16"	36. 7/8*
146"	500 231	40° 28°	1.5685	1,8601	25 1/260	37 5/8"
19*	510 210	62° 25°	1.6008	1.8875	25 9/16"	38 3/8*



You can build better and faster...save labor and reduce costs... with these high-production American Machines and Portable Tools on the job! More and more builders today have found that American is the answer—to speed up small tool jobs of sawing, planing, sanding... and put a beautiful surface on floors with rapid and efficient sanding, steel wooling and polishing! American builds 'em right—machines of advanced design, precision construction and rugged dependability. For a finish you'll be proud of on any floor—specify American... a complete line of quality finishes, maintenance and cleaning materials for wood, cork, concrete, terrazzo, asphalt, rubber, linoleum or plastic. Send coupon for more details.

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The American Floo 511 So. St. Clair St	or Surfacing Machine Co.
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	State

# Where can you cut your fastening costs?

See how this leading manufacturer of house trailers cut costs up to 30% on four different operations



1. FASTENING LAMINATED PLYWOOD BOWS of trailer frames with Bostitch staples holds them firmly in place while glue sets. Bostitch H4 self-teeding hammers, used on this job with rubber mallets, do the work 3 times faster and 30% lower in cost than hand nailing. It's easy to see why. One blow per staple. No slow placing of nais. No misses. Less worker fatigue. You, too, may find that Bostitch stapling hammers or machines can cut your costs of fastening wood, light metal, paper, leather, rubber or plastics.



2. ASSEMBLING SCREEN DOORS with Boatich TS stepling tackers is twice as fast as hand tacking, reports this same trailer manufacturer. The reason is clear. One-hand, finger-squeez operation is quick, easy and accurate ...leaves other hand free for holding the work.



3. APPLYING INSULATION to trailer walls is done better and faster with Bostitch T5 tackers. Builders enjoy the same benefits.
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 ATTACHING GIMP to the trailer frames is also easy with Bostitch T5 tackers. Staples can be accurately placed within 1/16" of edges.

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City			Zone	State	

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ALL TYPES OF MACHINES FOR APPLYING STAPLES ALL TYPES OF STAPLES APPLIED BY MACHINES

## Power Tools Make "Extras" Possible

An unusual amount of "extras" are incorporated in the new low-cost homes being built by the B-D Development Co. of Birmingham, Ala, R. H. Brown, president of the building concern, says that his latest 51-mit housing project will feature houses with a large number of "extras" and that this is being made possible by the savings realized through the use of modern power tools and equipment used by workers at the construction site.

Among the "extras" made possible by the savings through use of power equipment and incorporated into the homes are: Youngstown cabinet, sink and garbage disposal unit; Gerity-Michigan dishwasher; Bendix automatic washing machine; Westelox electric clock; International Harvester refrigerator; Hardwick gas range; Westinghouse exhaust fan and motor; Walker built-in ironing board; in addition, there is a chest of drawers in each bedroom, built into the closet with mirror above, and a book shelf built into the wall of the large bedroom.

Preliminary advertising brought 150 applicants for the 51 homes of the project.

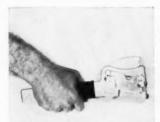


Time is saved by use of this radial saw with 2 H.P. motor

Power equipment which resulted in the substantial savings included DeWalt 2 H.P. radial saw; Boice-Crane jointer and planer; Whiteman concrete finishing machine; Dayton grinder and sharpener; Dayton arc-welding unit; Black & Decker standard drill; Stanley router; Skilsaw 3-inch belt sander; Stanley electric planer; Bostitch staple hammers; Master Vibrator backfill tamper; Skilsaw portable power saws; Boice-Crane table saw; Heston & Anderson jointer.

The houses are two-hedroom units that were designed to sell for an average price of from \$7,850 to \$8,200, lot included. At the construction site a woodworking shop is set up and equipped with modern labor-saving power tools by means of which all framing members, including trusses, which are set 24 inches on center are cut, and entire wall panels are fabricated.

Excavation for foundation wall is a 12-inch trench into which is fitted a "tailor-made" steel form which allows for concrete pouring of footing and outside perimeter of concrete slab in one operation. Insulation material one-half-inch-thick and 4 inches wide is placed around floor joints and Sisalkraft material is placed on the floor over steel reinforcing mesh covering concrete slab base. This base is laid on a slag fill, 4 inches deep.



STAPLING HAMMERS have a wide variety of uses on all building jobs. They are manufactured in a number of sizes and types adaptable to many operations, particularly the application of blanket and batt insulation



WORKMAN USING A POWER SCREW-DRIVER to fasten hinge butts in previously routed mortises. Power tools cut costs in finishing operations

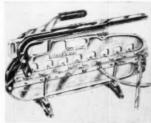
(Continued from page 180) friction clutch which slips when the correct torque has been reached.

#### Spray Guns

Although painters are the principal users of spray equipment, other construction men also benefit from these tools. Spray units may be used for application of waterproofing compounds, sealers, form lubricants, and even insecticides.

Spray guns are made in a wide range of sizes and styles according to the volume of the work and type of material handled. For light liquids, atomizer-type guns are more economical and of lighter weight, while a pressure feed gun must be used for liquids of greater viscosity. The pres-

(Continued on page 188)



A TYPICAL SHINGLE CUTTER which handles asbestos siding and shingles. Two sizes available: 27 and 32-inch Exclusive Features
Save Many Minutes

Every Day



# atlas 10" SAW

One sure way to cut costs and increase profits is to use this *portable* Atlas 10" saw for all interior finishing and built-in cabinet work. The Atlas makes 1 minute as good as 10 compared to hand sawing.

It's big enough to handle large boards and panels quickly, easily — there's  $24\frac{1}{2}$ " table surface between fence and blade —  $12\frac{3}{4}$ " in front of blade. Full size of table and extensions is  $45\frac{1}{2}$ " x 25". No other saw of comparable price provides such work area capacity.

The exclusive patented Atlas fence is a great time saver—takes less than 5 seconds to change from rip to cross cutting. It *lifts* off or on instantly...slides to position (has Vernier control for fine adjustment)... extends clear across table...locks rigidly at both ends, or unlocks, with quick lever control.

See all the features of this on-the-job table saw. Write for latest illustrated catalog.

#### ATLAS PRESS COMPANY

439 No. Pitcher Street, Kalamazoo, Michigan

DEPENDABLE QUALITY TOOLS SINCE 1911

# WORLD'S ONLY

NEW! Kick-Proof Cluich Viliminates

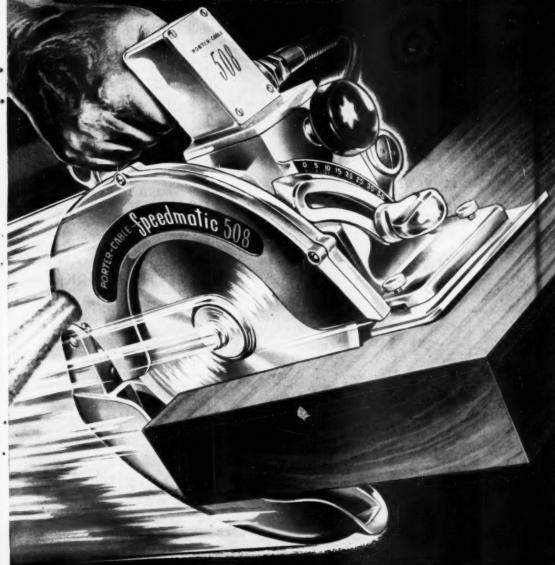
Dangerous Kick-Back 100%!



PREVENTS Motor Burn-Out and Damage to Gears due to Jamming

PROTECTS Against Operator ... Work Accidents to Operator ... Work and Damego to the Work

# Kick-Proof Saw



PORTER-CABLE Dealer's





A POWER SPRAY UNIT, fed from a pressure tank, is used in the shop for spraying doors, cabinets, and bookshelves. Note exhaust fan for worker protection against fumes

(Continued from page 185)

sure feed gun is to be preferred for most construction work. Light spray equipment, which can be carried from one part of the job to another, may get its air supply either from a motor-driven compressor of the piston displacement type, or from a diaphragm pump. The diaphragm pump is cheaper and lighter, but will require replacement of the rubber diaphragm at intervals; a piston pump, is heavier to carry and more expensive initially.

The heart of the spray gun is the nozzle in which air and paint are mixed to form the spray. Nozzles may be adjustable as to the size and shape of spray delivered, and as to the amount of paint and air combined. Gun and tips should be chosen for the material to be used, and cleaned after each day's work.

A tool which may be mentioned with spray units is the pressure-fed paint roller especially developed for the application of casein and rubberbase paints. Paint is contained in a pressurized tank and fed through a hose to a paint roller of porous material, permitting fast coverage of walls without the fumes and dust problem of spray paint.



SMALL JIG SAW shown weighs only 18 pounds, yet will handle 1-inch lumber. and will do many scroll, trim, and corn-



## FOR QUICKER AND BETTER WORK



#### INSULATION SIDING CUTTER

The lightest, most versatile cutter on the market. Almost automatic in action, the cutter feeder pulls material toward cutter blades. Does every necessary job quickly and easily. Very efficient in cutting out corners.
ONLY \$18.25, POSTPAID



#### ASBESTOS BOARD AND SHINGLE CUTTER

ASBESTOS BOARD AND SHINGLE CUTTER

An ideal teel for osbestos applicaters, contracters,
and lumber duolers. Cuts 1/4" thick 4" x 8" cement
osbestos sheets as well as asbestos roof and iding
shingles. It's fost, accuraci. A TIME SAVER. Curter
is of heavy plote tempered against wars. Asbestos
sheets may be cut standing on edge against wal,
or on flees Shingles can be marked by each degle
cut straight. Weighs 41/2 lbs.—24" long. Lew price
of \$8.25

#### O. PEARSON MFG. CO.

P. O. Box 255, Lake Villa, III. Phone 6-2334

AMERICAN BUILDER

STATE



BAND SAW above has a built-in guard. Only required sawing portion of the blade is exposed. Table adjustments are provided, and anti-friction guides reduce saw blade steel crystallization



THIS CHAIN SAW is used for felling trees, and for sawing large timbers

#### Stud Drivers

An ingenious tool making use of a powder charge to drive hardened steel studs in concrete, masonry or steel permits the setting of door bucks and window frames in a minimum of time. A .22 or .38 caliber blank cartridge, containing a special explosive is inserted in a driving "gun" with a pointed stud of specially hardened steel. Firing the gun drives the pin through steel anchor plates into brick, concrete, or steel beams. Shields and grip safety devices protect the operator when in use, and prevent accidental discharge, Other studs with threaded ends can



THIS VERSATILE RADIAL SAW is fitted with a power feed, taking over the operator's work, and assuring safety against kick-backs when ripping. Power feed is driven by a separate motor, and the speed of the work may be varied from 22 to 90 feet per minute

WHAT ARE THE

Important

THINGS ABOUT SAWS?

A "COMPLETE WORKSHOP"

\_it Cuts, Miters, Flanes, Robbets, Grooves! Only Boice-Crane Make a

Tilting- Arbor Saw-Jointer



BOICE-CRANE

HEAVY DUTY

JIG SAW

10" silking-arbor saw and a 6" jointer driven by one, rather than two motors. Both muchines can be used simultaneously, and have exclusive features providing more capacity for their size.

10" TILTING-ARBOR SAW Square off work up to 13 inches wide without costly front extensions.

BOICE-CRANE

Precision is MACHINED into every port. Important parts, such as ripping gauge, aren't stamped or die cost but MACHINED FOR ACCURACY. The 28" cost from rip fence is precision ground both sides. Large trunnions assure super-accurate blade alignme

Capacity, durability and precision, we believe you will agree. That's why exha capacity, unusual sturdiness and real precision have been built into the

fruncions assure super-accurate brade dispansees. Gouges are accurate, easy to read. The ½-inch arber and bearings the heaviest of any 10" saw. Handles heavy overloads. The only 10" saw which can be driven by low cest standard motors or which can be driven by low cest standard motors or lineshaft (even gas engine). The mater is entirely sep-erate from machine and away from dust, keeping vibrotion from the arbor, eliminating needless wear or trunnions. Powerful V-belt drive transmits up to 2 H.P. rent fence aligner seves operator reaching ever blode to set. Accurate alignment on first lock-up. One-knob. lightning fest, automatic control of both front and roor fightning has, overheirs control or some distribution of the controls quickly till, raise and lower blade. Positive locks. Fine miterfill, raise and lower blade. Pasitive lecks. Fine miter-gauge, with potenties tetting and adjustable stops for 43° and 90°. Approved safety goud abids entitie saw blade, tilts with blade. Dust challe incloses blade, dis-charges saw dyst away from motion. 20° a 27°, Blades: 10° dis. max.—Dade Heads 6° die. x 15%; wide. Depth of cui. Saw Verlicat 3°. Saw Tifled. 21%. Bench or finer models.

> The Saw That Was Designed With the Average Shop in Mind.

THE BOICE-CRANE 14" BAND SAW

smoothly. Speed 2 to 4 times faster. Blade speed up to 4,100 f.p.m. at 1200 r.p.m. Vibratianless

as zuzu r.p.m. Vibrationioss. Capacity - . . Up to 27" dia., 73%" thick; blades 3%" to 3%" to 3%". Safaty Entirely enclosed, except at cutting point. Single

Safety Entirely enclosed, except of cutting point. Sin Sentral blade Buides Safety adjusted, even when running In sose.

Structures strong, one-piece, welded shell frame. Bal.

anced, strong, light, melded Textoline wheels, die. 14".

12 MODELS Single and 8-Speed Backgeared



#### AVAILABLE NOW

The only 24" jig saw that cuts materials up to 5" thick and accommodates blades 5" to 9" long.

Wider range tensioner correctly tensions up to heavy duty 1/2" blades to guerantee a square face or plumb curve. Blades may be turned 90" for ripping long stock. Two adjustable blade guides.

50% longer blade stroke (11/2").

Does accurate, clean contour and straight cutting, inserted blade work, die filing, saber sawing and sending.

Oversize, precision ground, highly pol-ished cast iron work table (20" x 20") tilts 45" two ways.

Ball-bearing, Powerful dust blower. Overall: 39" high, 20" wide, 38" deep.

through industrial supply distributors

BOICE-CRANE COMPANY Toledo 6, Ohio 966 Central Avenue

Please send free literature or Tilting Arbor Saw 🗇 Saw-Jointor 🗀 Band Saw 🗀 Jig Saw

NAME. STREET.

CITY & STATE



# Better Design

makes the difference

- · in easier handling
- faster sawing





Model 160—Straight cut: 2" max.; 34" min. Bevel cut at 45:: 114" max.; 36" min. Net weight 10 lbs. 8 oz.

Model 180—Straight cut: 2 29/32" max.; 1" min. Bevel cut at 45°: 2 1/16" max. Net weight: 17 lbs. 8 oz.

## BRADFORD

ELECTRIC SAWS

Bradford engineered design has taken the awkward "bulk" out of old-time powered hand saws — and created a streamlined, precision tool that glides through the work with easy, effortless control. Only a Bradford has the fine balance that gives greater ease of handling in any working position.

Bradford Saws are designed inside and out to take on the toughest sawing jobs. Ball bearings with permanent lubrication are used throughout. Heat-treated alloy steel helical gears give maximum driving power. A powerful, 110 volt AC/DC motor drives the blade with quiet, coolrunning efficiency.

Own a Bradford — they are popularly priced and the choice of craftsmen everywhere. See your tool supplier for a demonstration or write direct for free bulletin giving complete specifications and prices.

#### The BRADFORD MACHINE TOOL CO.

654 Evans Street

Cincinnati

Precision Since 1840



THE RADIAL SAW finds use in rafter notching, cutting joists and studding, making forms, and many other jobs. Trailer-mounted units are available for easy transport from job to job

be driven to anchor pipe hangers, electrical boxes or wood panels to masonry or steel.

Another portable stud-attaching device for steelwork makes use of the resistance welding principle. A small power supply is connected to a 110-volt current, and leads go to a stud-setting gun. Threaded end studs are inserted, a trigger is pulled, and perfect welding is automatic. The studs have ceramic collars for confining the weld to the base of the stud and forming a strengthening fillet.

## PRODUCTION POWER TOOLS

Production power tools such as power saws, pipe-threading machines, and are welders, are normally taken to the job site for use, but are too bulky to be carried around the job by one man. Most of the heavy work on the job is done by these tools, and they represent one of the most important investments of the contractor.

#### Power Saws

Power saws for woodworking are generally either table saws or radial saws. The table saw has the blade stationary with respect to the work, which is fed to the blade, while the radial saw has the blade and motor assembly mounted on a pivoted arm, along which the saw is moved with relation to the work.

Table saws are powered either by electric motor or gas engine and are made in all sizes to handle work up to the heaviest timbers. Those designed for trim and cabinet work have tilting tables or tilting blade assemblies (preferred, as the work remains flat at all times), accurate settings for mitre and bevel cuts, and may also be used for dadoing and ploughing grooves. Shaper cutter heads may be mounted so that mouldings may be cut on the saw. Accurate ripping and cross-cutting guides make quality finished work easy for the workman.

(Continued on page 192)

# Red Devil

Longer handles

for Easier handling





8-hur day . . . That make's me \$40 cash." You can start this REPEAT CASH business in your own home or garage, while you are working at your regular job, Easy to operate, no experience needed, "Pays for itself from just 65 saw jobs,"—Harvey Jensen.

For as little as \$15 down payment, you can get your BELSAW CIRCULAR SAW SHOP rushed to you.

You can make \$4 to \$5 an hour in your SPARE TIME sharpening and setting CIR-CULAR SAWS for builders, lumber yards, factories . . . No Extra Equipment needed, no canvassing . . . send postcard for your Free Copy of "Life Time Security" today.

BELSAW MACHINERY CO

2001 Field Building Kansas City 2, Mo.

AMERICAN BUILDER



Simply insert the drive shaft into the drill chuck (2,000-5,000 R.P.M.), tighten chuck and the Super Saw is ready for use. (Also accommodates air drill or flexible shaft equipment.) Over-all length

#### BUILT FOR CONSTANT DUTY OPERATION

Built-in blower keeps the Super Saw comfortably cool even when used continuously and air stream is directed so that ofhips or sow dust do not obscure the work. All friction surfaces are of cilite, phosphor bronze or high speed ball bearings; all wearing parts are replacable.

is only 10%" and the Super Saw weighs only 3 pounds 6 ounces.

#### SUPER-SAW BLADES AND LUBRICANT



Six atendard blades of various longths, tooth sizes and thicknesses give Super Saw its extreme versatility and keep blade replacement costs at a minimum. Special Super Saw non-fluid laboricant is suppoiled in tube which screws into groups fifting to Saw Case: "one-shot! laboricant is superstime, gives complete protection to moving monts.



R.C.S. TOOL SALES CORPORATION

7ny it Younself See the Super Saw at your Jebbars! Inspect 1st, try let You'll agree that no other tool affers Super Saw's lifetime construction at such low cost . . . no other tool provides such drastic reduction in labor costs! Send the coupon today!

Gentle	men:									
	send istribu	Bull	etin	1.4	and	name	of.	the	nearest	Super
Name										
Addre	18									
City					. 2	one		Stat	te	



# RIP • CUT-OFF• EASY-CUT

6" .. \$1.75 9". \$2.65 7" ... 2.00 10"... 3.15 8" ... 2.15 12"... 4.35

Supplied with round or special-shape center hale for portable electric handsaw machines.

Simonds, sawmakers for woodworkers since 1832, now offers this complete new line of high quality saws at new popular prices...13

types of blades up to 12" diameter (including Dado Heads and Carbide-Tipped Saws) . . all made of Simonds Steel and fully guaranteed. Get them at your hardware dealer or local saw shop.



Factory Branches in Boston, Chicago, San Francisco and Portland, Ore, Canadian Factory in Montreal, Que. (Continued from page 190)

Table saws for rough carpentry lack the precise adjustments of lighter units, but will handle larger work continuously. Table sizes are larger. blades are of greater diameter, and heavier motors are needed. Some of these units have the blade and shaft attached to a pivoted arm so that the saw may be pulled through the work, rather than feeding the work to the blade. This keeps the blade below the table surface except when actually cutting-an added safety feature. All table saws are fitted with blade guards, splitters to keep the work from binding the saw, and antikickback devices for operator protection. Most insurance companies require the use of the safety measures, and foremen and superintendents should see that they are in place at all times.

#### Radial Arm Saws

Radial arm saws, because of their great versatility, are fast becoming the builder's most popular saw. The radial adjustment of the arm on which the saw moves back and forth. and the rotation in a vertical plane of the motor and blade assembly combine to make possible any conceivable type of cut in lumber. The fact that the saw moves rather than the work, is a distinct advantage in handling heavy work such as joists and rafters. Table extensions (which may be fitted with rollers) permit accurate repetitive cuts. Dado heads may be ganged with spacing washers for cutting tenons, and motor may be swung vertically for shaping.

Radial saws may be trailer mounted for ease in transport from one location to another, and can be set up for operation in minutes after being spotted on the job. Home builders find the 8-inch and 10-inch blade sizes most efficient for handling work up to 4-inch thickness. Motors required are from two to five horse-nower.

Band saws find on-the-job use where any quantity of cabinet work is done. Cornices and valances are turned out in quantity with templates. Trim for bookcases and builtin fireplaces can be made to fit, rather than trim precut pieces.

#### Power Hack Saws

Power hack saws, widely used by plumbing, heating, electrical and ironwork contractors cut pipe, rods. bars, beams and angles quickly and with greater accuracy than does a torch. Sawed ends of pipe need no reaming, and there is no burr left to retard the pulling of wires in conduit.

Two types of power hack saws are made. The reciprocating model (Continued on page 194)

# The "Improved Handy" ASBESTOS SHINGLE CUTTER



In a class by itself for efficient performance, economy and dependability.

Approved and recommended by the Asbestos Shingle Manufacturers.

SPECIALTY TOOL MANUFACTURERS

732 S. Illinois St. Belleville, III.

# That's it! I'll look it up in my AMERICAN BUILDER Catalog-Directory



It's practically an encyclopedia of the building business with 5 Directory sections and 26 Product Reference Sections all in one handy, easy-to-use volume. Get acquainted with your Catalog-Directory. It can make mapey for you,

#### AMERICAN BUILDER

79 W. Monroe St.

Chicago 3, III.



split-second fastening to concrete

**EXCLUSIVE DRIVE-IT FEATURES** 



DRIVE-IT is the only powderactuated tool approved by Underwriters' Laboratory.



Exclusive Swivel Safety Pad easily rotated for getting into close quarter work.



DRIVE-IT is the only powderactuated tool which requires but one standard power load regardless of penetration desired.



DRIVE-IT cannot be discharged accidentally due to the push and turn sequence. This, plus the large safety pad makes DRIVE-IT triple safe.





Exclusive Automatic Barrel Extension for fastenings inside junction boxes or other recesses.

Drive-it "300", lowest cost fostening tool.... Low original cost and low operating cost.



Powder Power Tool Corp. 0719 S. W. Woods St. Portland 1, Oregon

- ☐ Please send FREE catalogue and literature.
- $\ \ \square$  I want a FREE demonstration of DRIVE-IT.

Name

Street

City\_\_\_\_\_State\_\_\_\_



Model 86 MALLSAW Gives You **All These Performance** Advantages:

EASIER, FASTER More ACCURATE...

- Easy to Use in Either Hand
- Handy on Ladders, Scaffolds, Roofs
- Readily Adapts to Cut Any Materials
- Powered by Heavy-Duty, Universal Motor

Expect years of dependable, trauble-free service from a Model 86 MALLSAW . . Expect years or dependable, trauble-tree service from a model at matter than 18  $\frac{1}{2}$  dia, combination blade, cord, lubricant, when the all in handy metal carrying case. Extra blades available for dadoing; prooving tile, concrete; cutting light metals. Choose and use this handy MALLSAW — a quality tool, through and through!





Snow-white blade with bold, legible, jet-black numerals and graduations. Graduated in 32nds for first 6 inches.

Sturdy die-cast case heavily chromeplated, calibrated for quick reading inside and outside measurements.

Blade 1/2" wide made of finest high carbon steel-tempered-Bonderizedenamelled-baked.

Blade replaceable in seconds-without tools-without even opening case. And Evans replacement blades cost far

Exclusive Evans automatic brake gives smoother push-pull action with absolutely no "creeping" of tape into

Underside is white too. Mark with ordinary pencil, remove mark with flick of thumb.

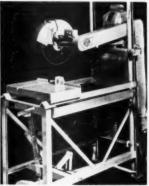
Every "Evans White-Tape" is unconditionally guaranteed.

Check these list prices: 10-ft, \$1.49 8-ft, \$1.19 6-ft, 98¢

less. Evans & Co. . ELIZABETH, N. J. . MONTREAL, QUE.

Prices higher in far west and Canada. Order from your tool distributor.

Makers of Evans Folding Rule and "The Folding Yardstick"



THE MASONRY SAW uses either abrasive or diamond-tipped wheels, and will cut limestone, brick, cinder or concrete block, terra cotta, transite, marble tile, and granite

(Continued from page 192) uses a straight blade which is drawn back and forth, automatically raising on the non-cutting stroke. The bandsaw type has the blade angled slightly in relation to the plane of the drive wheels, so that work of any length may be cut. This is the most popular power metal-cutting saw. Size is determined by the maximum thickness of work that may be cut; electricians find about a 6-inch size best, while plumbing and heating contractors will use sizes from 4 to 8 inches, depending on the biggest pipe handled on the job. Automatic stops are provided for duplicate work, such as cutting air chambers, and an automatic stop shuts the saw off at the completion of the cut. Adjustable vises hold the work at any angle. and the cut is straight and smooth, almost as good as can be had with a milling machine.

#### Masonry Saws

Brick, tile, and concrete block cutting saws have almost entirely replaced the tedious cutting of brick for odd-angled corners and cutting of concrete blocks to fit. A bonded abrasive wheel is generally used, although carbide and diamond toothed saws are available. The brick or tile to be cut is moved back and forth under the saw on a traveling carriage. and the saw is lowered into the work as cutting progresses by a foot pedal. Provision is made for wet cutting of extremely dense ceramics.

#### Power Drills and Drill Presses

The home workshop type of drill press, easily moved from job to job. is especially popular for cabinet work operations at the site. More accurate than the hand drill, these tools can also be set up with the proper at-

(Continued on page 196)



**EXCLUSIVE** LONG-SHAFT TRANSVERSE MOTOR MOUNTING transmits as much as 25% extra power, supports blade on oversize ball bearings from one side of the tool clear to the other.

**EXCLUSIVE** SAFETY-LOCK SWITCH—positive protection against accidental starting.

**EXCLUSIVE** SHOCK-ABSORBER GEARING harnesses the added power of these great new saws, gives extra life to motor, gears, spindle and blade.

**EXCLUSIVE** PROTECTED DEPTH AND BEVEL SCALES are in plain sight when you use them—out of the way when you don't. Always accurate.

**EXCLUSIVE** EXTRA-WIDE REENFORCED STEEL SAFETY BASE for better balance—easier to handle, far safer to use.

PLUS powerful, built-in sawdust blower . . . over-use ball bearing construction . . . automatic ball bearing blode-guard . . . die-cast aluminum housing . . . steel elinserts for bearings and threads . . finger-tip depth and bevel control . . . convenient handles . . . steel rip guide . . . extra-capacity switches . . . most powerful motors ever used in electric saws

Silver Line

means "new design"—from rip guide to switch—to give you the safest, easiest handling, most powerful saws on the market today. 15 new features... many of them exclusive...each of them thoroughly field tested and approved for economical, trouble-free operation. Six sizes to meet every demand from the lightweight "6" to the sturdy "12". Try these great new Silver Line Saws now available at your Thor distributor. Independent Pneumatic Tool Co., Aurora, Illinois.





Stanley Chisels are designed to give your work the clean, smooth appearance of superior craftsmanship.

Forged from the finest chisel-steel made, Stanley blades are carefully heat-treated and accurately tempered

to bring you keenercutting, longer-lasting edges. Cross grinding assures perfectly proportioned bevels. Nicely balanced for better control.

Ask your hardware dealer to show you Stanley Chisels—available in a full range of styles and sizes. Stanley Tools,

New Britain, Conn.

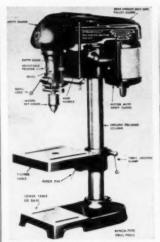
No. 60. Finest Chisel steel, blades heat-treated and tempered to hold keen edge. Blow-centering steel crowns protect tough plastic hondles. Blades sized \(\frac{1}{6}\) to 2 inch. Also available in handy plastic kits.

No. 750. Rugged, butt style socket chisels. Seasoned hickory handles capped with leather wosthers. One-piece high quality steel blades and sockets — no welded joints. Blade sizes 1/4 to 2 inch. Also available in convenient plastic kits.

THE TOOL BOX OF THE WORLD



HARDWARE . TOOLS . ELECTRIC TOOLS STEEL STRAPPING . STEEL



THE DRILL PRESS has adjustments permitting use as a shaper, router, mortise cutter, and for rapid drilling of either wood or metal

(Continued from page 194) tachments for light duty as shapers and routers.

#### Power Sanding Equipment

Power floor-sanders are a necessity for every contractor. Much of the sales appeal of a finished home is in a carefully finished, fresh floor, Drum-type sanders handle large center areas quickly, while the edges and corners can be touched up with smaller units or hand disc sanders. The builder who does his own mill and cabinet work may find it desirable to have a belt sander on the job. This may be either a small belt machine, for smoothing edges of doors, or a large model, with traveling table for holding the work underneath the belt for panels.



THE SPINDLE SHAPER enables the contractor to save by making his own mouldings and trim. The unit shown above has two speeds. 7000 and 11.000 r.p.m. for different size cutters, and a vertical adjustment range of three inches THIS JOINTER is mounted on a stand and powered by electric motor



On the face, look at the sharp, steady working grains of Silicon Carbide, the "grinding wheel grit" abrasive grain. Our DURABONDED® and RESINIZED processes doubly anchor these grains to give you the finest possible abrasive covers.

On the back, you see the familiar BEHR-MANNING triangle trade mark that identifies an abrasive product line that has undergone thousands of hours of laboratory experiment, research and testing before you even put it on a sanding machine.

And on the job, watch the cover that cuts clean, smooth and fast for a far longer time without wild grain troubles, loading or limping.

WE'LL PROVE IT on your next job, with a free demonstration of RESIN-IZED SPEED-GRITS PAPERS. Tell us when and where — write today. Address Dept. AB-4.





RADIAL ARM FOR MOUNTING ELEC-TRIC HAND SAWS has cut off movement of 24-inches. Bevels or miters 0 to 45 degrees left or right. 9% inch vertical adjustment

#### Routers and Shapers

Although it is not common to find shop-type routers and shapers on the job, the contractor who is building a volume of units at one location may cut costs by making his own mouldings and trim from undressed lumber. Power routers and shapers may be set up in a temporary cabinet and trim shop, and turned out on a quantity basis at a considerable saving.

#### Planers

The thickness planer, which planes rough lumber to finished size, will permit a saving in areas where rough boards are to be had at substantially lower cost. The boards are power-fed by rollers into revolving blades, giving a fine finish needing only light sanding. The jointer is a similar tool, in which the board is passed over a revolving head carrying the knives. Adjustments of the front table allow a shaving of any desired thickness, and a tilting fence permits accurate beveling. A separate section of the table permits rabbeting faster and more accurately than with a hand plane.

(Continued on page 200)



JOINTERS ON THE JOB in small operations are being used in many instances to save on material costs and time. They are available in a wide variety of sizes and prices



Manufacturers of Quality Woodworking Machines Since 1887

DEPT. 30-F, 1546 KNOWLTON STREET, CINCINNATI 25, OHIO

# STRAIGHT-LINE RECIPROCATING ACTION GUARANTEES SCRATCH-FREE FINISHES



Contractors and builders find this powerful, fast cutting Dremel Sander the perfect answer to finer finishes on drywell joints, plaster, doors, woodwork, siding and other exterior surfaces. Its straight-line sonding action leaves no marks, swirts or cross-grain scretches. Light weight of only 5 lbs and eary one-hand operation mokes Model 2000 ideal for continuous use. Added stroke and extra power—plus 21 sa. in. of sanding surface—assure rapid production. Only 2 moving parts, never needs ailing: dustproof: werall size 3½" x 4½" x 7", uses 110-120 V., AC. Fully guaranteed. If your dealer cannot supply send order direct to

DREMEL MANUFACTURING CO.



EASY ONE-HAND

21 SQ. IN. SANDING SURFACE

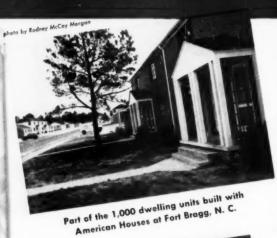




this all steel carrying case—also 25 asst d. abrasive sheets and a

# precision-cuts for a \$10,000,000 HOUSING PROJECT!

60 DE WALTS IN OPERATION



One of today's outstanding projects is the 1,000-house job at Fort Bragg, North Carolina.

This military housing project is being built by T. A. Loving and Company of Goldsboro, N. C. and W. H. Weaver Construction Company of Greensboro, N. C.

The houses and apartments in this project were prefabricated by American Houses, Inc., who have over 60 DE WALT SAWS in operation in their three plants for precision cutting and mass assembly of a wide range of house models and designs.

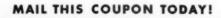
This example of the use of DeWalt for precision cutting for multiple construction should interest all builders.

The building market is rapidly changing. You may want to devote your future efforts to other types of building: defense housing, military housing, low-cost rental housing, special wood structures, etc.

No matter what type of building you do—whether for a single structure or for a thousand—you have a valuable asset when one or more DeWalts are on the job. You build faster...better...more accurately... and at lower cost.

DeWalt models are available from 1/2 H.P. to 71/2 H.P.

Shown on this page is the newest DeWalt GR—the "builder's saw." This model has 5 new features, including low dead rise motor which permits deeper cut. See what all five features mean to you by seeing an actual demonstration! Your DeWalt dealer will show you. Send coupon below for full information.



Address.

City. Sinta



 provides that "Velvet Smooth", faster, easier cutting eliminates gears — cushions motor shock.

You'll find it hard to beat the powerful 6000 RPM cutting speed of this new SYNTRON Saw — trimming sub-flooring, fitting doors, seat and ridge cutting in roof framing, trimming roof sheathing and many other jobs.

When equipped with either abrasive discs or a diamond grit blade, the SYNTRON Saw easily cuts or scores tile, brick, concrete, terrazzo, etc.

In fact — once you have a SYNTRON Saw, you'll be surprised how many jobs you find on which to use it and how much time it saves.

\*Price complete with combination saw blade and wrench, 1.5 ft. 3-conductor cable and instructions. Sturdy metal carrying case at \$8.00 extra.



SEE YOUR DISTRIBUTOR- OR WRITE DIRECT

SYNTRON COMPANY

HOMER CITY, PENNA.

#### SAMSON BAR CUTTERS

- All Steel Construction
- Unbreakable Frame

Easy Operation





CAPACITY	No. 20	No. 23	No. 26
Rounds	5/6 "	3/4 **	7/8 "
Squares	1/9"	16"	3/4 "
Flats	2" x 1/4"	21/2"x5/16"	2 1/2 "x 3/6"
PRICE	\$47.15	\$63.00	\$72.00

Equipment

f.o.b. New York, subject to change

JULIUS BLUM & CO., Inc.

(Continued from page 197)

#### Pipe Threaders and Cutters

Power pipe threading and cutting machines cut costs for plumbers, electricians, and steamfitters. In typical machines, the pipe is held in a chuck and rotated against a stationary cutting wheel and threading dies. Built-in pumps automatically feed cutting oil as the thread is being cut. and quick-opening die heads eliminate lost motion in running the thread back. Pipe machines will handle work from 1/4-inch to 2-inch pipe, and will also power drive shafts for cutting and threading pipe up to 8 inches. With a pipe machine a mechanic can cut and thread 60 pieces of 34-inch pipe an hour, or can cut a 2-inch thread in 22 seconds-an enormous saving in time.

#### Welding Tools

The familiar acetylene torch is so familiar a part of building equipment as to need little comment. It is a "must" for burning rods, cutting beams and angles, repairing machinery.

#### Special Tools

In addition to the common tools that are used on all types of work, manufacturers have developed an incredible variety of tools for special work. Among those which may be mentioned are: pneumatic lifts for installing ceiling panels, automatic saw sharpeners, induction heated glue presses, and pipe-bending machines.

#### SELECTION

As portable power tools will represent a major investment on the part of the contractor, careful selection should be made before purchasing. No tool should be bought unless the economies effected by its use will more than offset the cost of the tool. In many cases the saving will be immediate. One contractor estimates that a power hand saw pays for itself in the first two months of use. Other tools, such as welders, may require two or three years of use before they pay for themselves. If it is possible to analyze the savings to be gained by the use of power equipment, this should be done. It may be found that tools which will be used only on one job, or only occasionally, may better be rented or borrowed from another contractor than purchased outright. On the other hand, if it is known that a tool will save money, then it should be bought as soon as possible.

It is poor economy to buy under-

# FOR YOUR PLANT

Whitney 105 SURFACER — 24" wide, Planes stock 1/16" to 8" thick, Feeds, 20 to 60 fr. per min. with Micro-feed Selector and Feed Indicator.

HESE Whitney Machines are accurate, dependable, economical. They have been developed especially for the contractor's and builder's shops and the average woodworking shop to do the job and to save space. They are the result of over 100 years' experience producing precision woodworking machinery. These machines will give BIG machine performance, occupying small floor space.

Write today for complete information. Ask for bulletins P2 and S2.

BAXTER D. WHITNEY & SON, INC. Winchendon, Massachusetts, U. S. A.

Whitney 510 SHAPER — Belted, motor drive. Table, 36" x 31". Vertical adjustment of spindle, 3½". Detachable spindle top.

IN OUR

Whitney WOODWORKING MACHINERY





Zips through wood, sheet metal, lath, plaster, pipe, nails, etc. in seconds! Attaches to any heavy duty ½" or 5/16" drill.

Use this sensational time and worksaving tool. You'll say it is the best portable, all-purpose saw on the market. Write for circular.

## ATTENTION! JOBBERS AND DEALERS

Profitable possibilities for aggressive distributors. Wire, write or phone.

TRI-SAW CORPORATION
6611 Clayton Road + St. Louis 17, Ma.

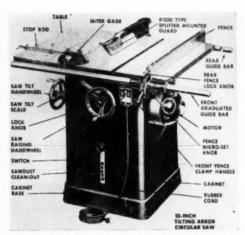


TABLE SAW is fitted with a great variety of adjustments for raising and lowering the blade, tilting the blade or table, and setting and locking rip fence and cross-cut quide

powered tools. The tool with a power rating more than adequate for the job will perform better, last longer, and be less likely to break down than the one which is "almost" big enough,

#### MAINTENANCE

Proper maintenance will do more

## Who's got my AMERICAN BUILDER Catalog-Directory



If it's gone, it's probably because one of your associates found it very complete and useful as a buying guide. Or, perhaps he sought the answer to a building problem in one of the 26 Product Reference Sections that tell you Who Makes It and How to Use It.

Better find your copy and get ac-quainted with it. It can save time and make money for you.

#### AMERICAN BUILDER

79 W. MONROE ST.

CHICAGO 3. ILL.

than any other one thing to insure trouble-free performance and long tool life, Lubrication, cleaning, and checking for worn or defective parts should be a regular routine. Responsibility for maintenance should be specifically assigned, rather than left to chance. Safety attachments should be inspected to see that they are in use and correctly installed Manufacturers' recommendations should be followed for lubrication and maintenance. Use the correct grade of lubricants. Make periodic adjustments for wear if these are provided. Repairs which require factory attention should not be attempted in the field with make-shift or substitute parts.

#### Mechanization Cuts Costs. Reduces Time

Mechanization in the construction industry as a whole has been steadily increasing during the past 25 years, with World War II providing considerable impetus to the whole field. The development and improvement of earth-moving equipment now permits large scale excavation and site preparation within a fraction of the time formerly required. At present the range of this type of equipment available for both large and small jobs, including housing, has made this one of the most versatile of construction operations.

Recent developments would indicate that, with the range of tools suitable for on-site operations steadily increasing, there are increased opportunities for realization of cost reductions by even the small



Jays Paul Schleicher & Sons GARY, INDIANA, HOUSING CONTRACTOR

"SOIL COMPACTION with the Barco Rammer has been the key to earlier completions and lower costs for us." savs Paul Schleicher & Sons, Garv. Indiana, housing contractor.

The Barco Rammer is a new tool with many uses! No longer is it necessary to wait for loose earth fill, or backfill, to settle tamp it immediately to HIGH DEGREE COMPACTION under slabs... around foundations and footings...on grades...in trenches - SAVE TIME! CUT COSTS!

#### ASK FOR DEMONSTRATION

See for yourself - ask for our nearest distributor to give you a demonstration.

Sand for CATALOG No. 621

### BARCO COMPANY

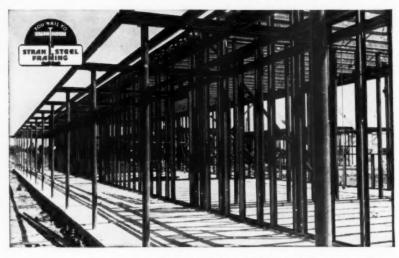
Chicogo 40, Illinois

**Builders of Portable Gasoline HAMMERS** and RAMMERS

#### REDUCE

WAR ARMS

# STRAN-STEEL FRAMING



For | Roof Systems Floor Joists **Quickly Erected Partitions** or Complete Structures

Fire hazards will be minimized in the Robstown, Texas, Elementary School, because of the use of Stran-Steel framing. Wall finish on the interior will be gypsum plaster on rib lath. On the exterior, brick veneer over Steeltex wall lath with 3/4" mortar bond. Benjamin K. Wyatt. San Antonio, is the architect.

In addition to the many time-saving, money-saving, and structural advantages of Stran-Steel nailable framing, architects and their clients will appreciate the permanent protection offered by this non-combustible framing material. Specifying Stran-Steel roof systems and floor joists can mean the difference between a costly fire and one that is easily localized and controlled. Also, architects can point to lower insurance costs possible with Stran-Steel framing.

The versatility and strength of Stran-Steel framing make it easily adaptable to the latest trends in design. And the speed with which the precision pre-cut members can be assembled brings a worthwhile reduction of in-place building costs. Close-in time is shortened, and interior work can proceed before exterior completion. The nailability of Stran-Steel framing means additional economy, too, in the application of collateral materials.

If you are planning new industrial or commercial construction, or schools, hospitals and similar structures, it will pay you to investigate Stran-Steel framing. Complete literature available on request, or see Sweet's catalog service. architectural and builders' files.

#### GREAT LAKES STEEL CORPORATION

Stran-Steel Division NATIONAL STEEL







METAL building products used in light construction are far too numerous to catalog or describe in detail in this article. Plumbing, heating, wiring, appliances and fixtures in bathroom and kitchen, as well as numerous structural parts of the home use metal, either because of cost, case of handling, strength, wear resistance, or some other special property no other material possesses for the job.

#### STRUCTURAL MEMBERS

The American Institute of Steel Construction specifies twelve advantages to steel construction: strength, uniformity of material, endurance under stress and service load, toughness against shock, adaptability, versatility for design, fire safety, compactness in space, speed of construction, salvage value, economy of material, and service from a giant industry.

#### Framing

Steel joists and complete steel framing in light construction have been found economical by many builders. Panel assemblies with nailable steel framing members may be partially fabricated at the shop of the steel distributor. Shop prefabrication can be supplemented by site cutting and final assembly. Assembling steel members on the site requires a power saw and portable welders. The nailable feature of the framing members makes it possible to apply other conventional materials to studs and joists with 8d nails.

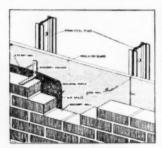
Insulating board sheathing may be applied directly to the studs for the exterior wall. Dry-wall construction is possible inside without furring because of the nailable feature of the studs.

A number of manufacturers are now producing a wide range of stand-





LIGHTWEIGHT steel beams form sunshields and porch in this modern design. At right, workman bolts roof purlin to larger structural beam running length of house



DETAIL shows insulation installation with nailable steel studs. Masonry anchor is nailed to studs with 8-penny nail. Hook nails hold insulation securely

ard sizes and shapes useful in bridging, trusses, or as joists, many of which units are to a large degree prefabricated by the manufacturer, ready to use,

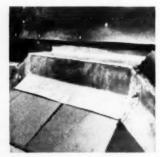
#### Columns and Posts

The familiar concrete-filled steel column has long been recognized as one of the strongest building members. It is fire-tesistant, economical to install, and takes little space. These columns may either be fixed or adjustable, and may be filled with concrete by the manufacturer or on the building site.

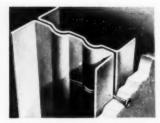
These columns are available in diameters from 234 inches to over 12 inches, and lengths from 5 feet to 20 feet. Fitting in with modern demand for maximum usable floor area, these columns usually require from 16 to 15 the space that "H" column boxed pillars would need. They may frequently be concealed in the thickness of walls or partitions for a further gain in space saved.

#### Reinforcing Rod and Wire

Reinforcing rod and wire mesh play an important part in concrete slab construction. Most prefabricated



COPPER is popular for flashing because of its long-lasting qualities and ease of installation

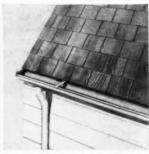


DETAIL of natiable steel framing which is erected with ordinary carpenter's tools. Grooved framing sections make it possible to drive nails into the metal framework

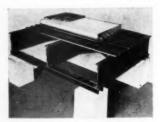
concrete slabs and joists embody some form of reinforcing rod. Loadbearing walls of combined brick and concrete construction usually contain rods also, and site-fabricated concrete slabs for floors, as well as for driveways and walks, usually contain wire mesh fabric of some kind. Other kinds of wire mesh are used for reinforcing concrete siding and for reinforcing the mortar used in tying brick veneer to sheathing.



SNAP-ON Trussteel stud shoe designed to speed erection of metal studs for metal lath construction. The snap-on holds shoe in place while wire tie is applied near floor

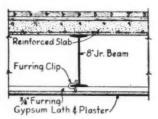


ROOF GUTTERS and downspouts are available of galvanized iron, stainless steel, copper and aluminum. Strength, durability, and tightly-sealed joints are important



CUTAWAY to show how nailable steel framing is screwed to channels, with steel sheeting nailed to top, on which concrete is poured with wood flooring laid over

Steel rod is also used to anchor ends of joists to concrete or masonry supports. When they rest on steel supports, welding is preferable. Steel strap functions similarly in holding up pipe, conduit, and ductwork in many locations throughout the modern building.



JUNIOR I-beams hold lath and plaster by means of furring clips as shown above



STEEL WEB joints carry wood subfloor or prefabricated steel decking. Channels carry 2 x 4's onto which wood subflooring is nailed



FLAT, square, and small-diameter tube shapes are popular for heating ducts in modern installations

# Larger discount • Faster turnover • Greater profits when you sell

## the BENNETT complete line of sales proven fireplace supplies

Bennett—and only Bennett—offers you a complete line of fast-moving, profit-building fireplace supplies. So, when you standardize on Bennett, you can combine purchases—take advantage of top discounts. And...customer acceptance of Bennett fireplace products is as complete as the line itself. Recognized quality...continuous national advertising...assure that!

Let us tell you will you save money . . . in larger discounts, lower transportation costs, bigger dollar sales, faster turnover . . . when you sell Bennett. Write for free catalog and complete information to Bennett-Ireland, Inc., 452 Market Street, Norwich, N.Y.



#### BENNETT Expanslip Throat Damper

Bennett Expanslip Throat Damper is a better damper at low cost. Step 60° front slope gives sure draft. Structural steel with sturdy slip-joint eliminates breakage in shipping, handling and in use.



#### BENNETT Cast-Iron Damper

Bennett Cast-Iron Damper quality at competitive prices. Superior casting facilities in our own foundry enable us to produce this steep 50° slope damper, with interchangeable Rotary or Ratchet Control feature. With guaranteed steel valve or castiron valve.

#### BENNETT Fireplace Unit

Bennett Simplified Standardized Fireplace is sized for standard brick, with no cutting or fitting. It lets you offer every customer "The Perfect Fireplace." Quicker and easier to build—it's priced within the reach of all. It's a big-volume, high-margin unit—a real profit builder for you. Count on this Bennett—the recirculating unit with most sales appeal.



# BENNETT — One great profit source for all your fireplace supplies

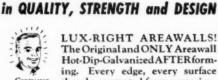
- Warm-Aire Fireplaces
- Expanslip Throat Dampers
- Cast-Iron Dampers
- Flexscreen
- Deep Seat Ash Dumps
- Cast-Iron Clean-out Doors
- Grates and Log Dogs



NORWICH NEW YORK







LUX-RIGHT AREAWALLS! The Original and ONLY Areawall Hot-Dip-GalvanizedAFTERforming. Every edge, every surface thereby protected from corrosion.

Two Types: Streamlined-Straight and Round. Both types come in a wide range of sizes.



HUG-TITE FLANGES-on all types-make the unit fit tight to foundation. A steel product first in Quality, Strength, Design, acknowledged to be "the Nation's

Best" by contractors, builders, home-owners everywhere. Often imitated, never equalled.



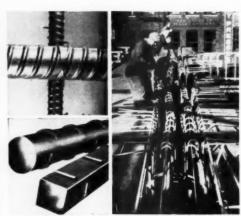
These LUX-RIGHT easy-to-install one-piece units save time, labor, money. Hardened masonry nails supplied with each unit. No upkeep expense. Last word in

long, satisfying service. Free illustrated folder shows sizes, proper installation, much other helpful information. See your distributor, building materials dealer, or write us direct.

\*TM REG. U.S. PAT. OFF.

SAINT PAUL CORRUGATING CO.

Expert Sheet Metal Manufacturers for 67 Years SOUTH END WABASHA BRIDGE + SAINT PAUL I, MINN.



STEEL RODS and bars used with concrete column and floor construction. Two types of bars are shown

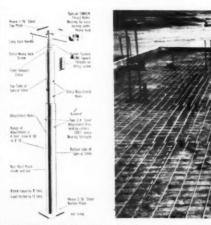
#### **FUNCTIONAL SHAPES**

Metals commonly used in a wide range of functional shapes and designs include aluminum, steel, galvanized sheet metal, stainless steel, bronze, nickel-silver alloys, brass, and copper in various qualities. Some shapes are made by forming sheets into the desired shape; others are extrusions of heated metal through dies or molds to produce bars with the desired shape in uniform cross-section the full length of the stock.

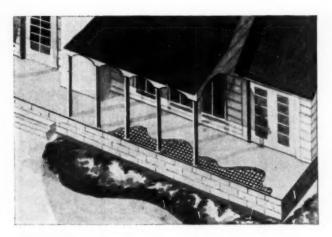
#### Gutters-Roof Valleys

Stainless steel, copper, aluminum, and ordinary galvanized sheet metal are all used to provide roof drainage. Copper has for years demonstrated its long-lasting qualities, and stainless steel and aluminum are not far behind. Trough design for strength is important. Pipes and elbows should have tight seams, either double-locked or welded. Styles of trough and pipe may be either round or box-

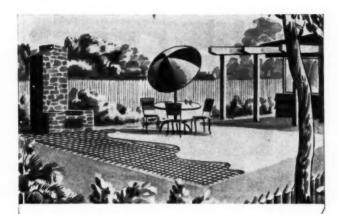
Advocates of stainless steel stress its high strengthweight ratio which makes possible use of longer sections and easier installation, with fewer joints and hangers. (Continued on page 212)



TYPICAL adjustable steel post is shown at left. It can be used to level up floors. Right, steel wire reinforcing mesh



# PORCHES and PATIOS help sell homes



Exceptional strength and durability are imparted to concrete construction by this "backbone" of high tensile strength steel. The slabs are "knitted" together, expand and contract as a unit, thus resisting cracking, spalling, and heaving.



• These pleasant centers for family gatherings make any home more attractive to the discriminating buyer. Built of concrete, reinforced with American Welded Wire Fabric, they add to the appearance, comfort and actual dollar value of a home.

Other powerful sales aids are concrete foundations, walls, floors, driveways and sidewalks. Home buyers know that concrete construction retains its original beauty year after year, free from unsightly cracks, when properly constructed and reinforced with U·S·S American Welded Wire Fabric.

It costs surprisingly little to reinforce all the concrete construction in and around your homes with American Welded Wire Fabric; yet the added value is a potent advantage when it comes to closing a profitable sale.

In every locality, American Welded Wire Fabric is readily available from jobbers' and dealers' stocks. Send for our illustrated folders. Just drop a line to our nearest sales office,

AMERICAN STEEL & WIRE DIVISION UNITED STATES STEEL COMPANY GENERAL OFFICES, CLEVELAND, ONIO

COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO PACIFIC COAST DISTRIBUTORS TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.

SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Every type of concrete construction needs



AMERICAN WELDED WIRE FABRIC

reinforcement

II NITED STATES STEEL

## Types and Styles of Metal Trim

8 BASIC GROUPS . Metal trims are divided into eight groups shown on this page. Each group includes several different styles of trims for the same general purpose. For example, nosings include those with flanges that extend under the coverings; those with a flange which fits into a groove; and those without flanges. Also, many Chromedge sections are not limited to a single use. For example, No. 102, a nosing listed as an INSERT TRIM, is also used as a cap trim. These trims are classified as to their most frequent use. (Insert trims are grouped separately).

CAP TRIMS • For upper edges of dado, wainscot, or cove-base. Those with a projecting lip at upper edge in back can be used also as nosings.

WALL TRIMS • or divider bars—conceal joints between panels of either like or contrasting coverings, used for decorative paneling.

INSERT TRIMS • Shown separately because of colorful inserts this group includes nosings, wainscot caps, corners and coves.

COLOR RECESS TRIMS • This group of nosings features painted recesses for decorative beauty.

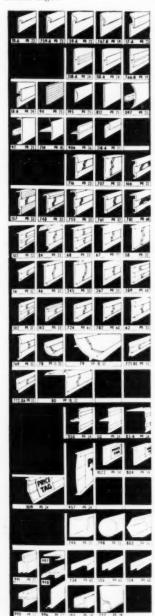
PRICE TAG TRIMS • A separate group of nosings for specialized use. Available for all standard price tickets held by grooves in mouldings.

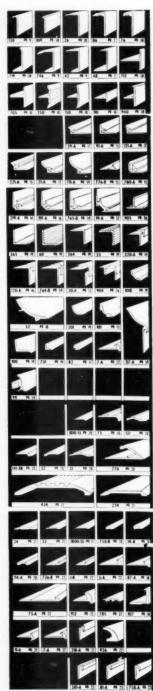
CORNERS AND COVES • Inside and outside corners, horizontal or vertical. Many have matching end stops and corner fittings.

EDGINGS AND BINDERS •
These trims bind, seal or protect edges of coverings where exposed to wear, stress or moisture. Includes sink-well edgings, carpet-bindings, threshold saddles and similar sections.

27/4 m 1 17/4 m 1 1 17/4 m 1 17/4 m 1 1

NOSINGS • For outer edges of bars, counters, cabinets, tables, sink tops, drain boards, stair treads and similar points. Nosings with flat backs serve also as wall trims. Those with a raised lip provide non-drip counter edges.





Chromedge Date

## LEIGH BUILDING PRODUCTS

- will give added convenience, beauty and saleability to your homes.



The Leigh Line is a complete line of metal building necessities that have received universal acceptance from home owners and builders. Each unit is built to fill a definite need in a more attractive and efficient manner.

Use Leigh Products on your new homes or remodeling jobs. You'll find they add that extra touch that closes the sale.



If you do not have a copy of the latest Leigh Catalog 52-L showing the complete Leigh Line — Write us direct for your free copy.

## LEIGH BUILDING PRODUCTS DIVISION

AIR CONTROL PRODUCTS, INC.

COOPERSVILLE

MICHIGAN

# PLAN FOR TOMORROW



**BEFORE** 

Sun-struck Windows of Lockheed Aircraft Corporation's Burbank, California plant created eyestraining glare, allowed heat rays to penetrate glass, caused uncomfortably high inside temperatures. Appearance of building exteriors was spoiled by unevenly adjusted blinds and the open and closed windows.



AFTER

Keiser Aluminum Shade Screen now covers 10,000 square feet of windows on 7 buildings of the Lockheed plant. Thousands of tiny louvers deflect hot rays before they hit glass. Result: Glare eliminated. Interiors up to 15% cooler, more comfortable for work. Exteriors dramatically improved by uniformity of windows—emphasis of modern, horizontal lines.

# WITH ALUMINUM

THERE'LL BE plenty of aluminum available for tomorrow's building requirements as a result of today's industry-wide expansion.

Kaiser Aluminum alone is building new facilities which will increase its pre-Korea production of primary aluminum by 132 per cent!

So make your plans now to utilize the many advantages of light, strong, corrosion-resistant aluminum.

#### Check Before You Substitute

Most Kaiser Aluminum today goes to help meet the needs of the national security program. That's why it is not always readily available.

However, before you specify less-satisfactory substitute materials, ask for Kaiser Aluminum.

You may still be able to give your clients the best— Aluminum!

#### A Few of Today's Modern Aluminum Applications

Building materials made of Kaiser Aluminum offer exclusive advantages in design, beauty, and quality. Shown here are a few recent applications that prove aluminum is your best building material for tomorrow's plans.

#### Write for Information

Write for full information about any Kaiser Aluminum building product—and for AIA files. Kaiser Aluminum offices in principal cities. Kaiser Aluminum & Chemical Sales, Inc., Oakland 12, California,

# Kaiser Aluminum

Building materials for home, farm and industry



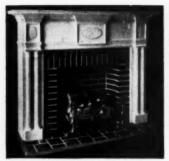
Raiser Aluminum Siding, ideal for building or remodeling, gives sparkling modern look to Malley's Candy Shop, Cleveland. Weatherproof, rotproof, rustproof, aluminum siding lasts for generations. Bakedon enamel coat gives smooth surface that looks better, is easy to clean. Designed and erected by Lumi Land Distributing Co., Rocky River, Ohio.



Kaiser Aluminum Roofing on these Liggett & Myers tobacco warehouses is strong, solid corrugated aluminum. Bright surface reflects sun's rays—helps maintain uniform inside temperatures, often so important in warehousing goods. Specified by owner W. O. Crombie of Paris, Ky., because of aluminum's "complete lack of maintenance requirements."



Kaiser Aluminum Ductwork used in Los Angeles Times Building was fabricated right on the job, elimininating costly handling, trucking, atoring of bulky pre-assembled sections. Easily fastened with rivets, welding, or with sheet metal screws. Installed faster with less worker fatigue. And uninsulated aluminum delivers as much heat as insulated galvanized material at lower cost.



## READYBUILT

fRog. U. S. Pet. Off.)

## **FIREPLACES**

Adds beauty, cheer and comfort to any home, old or new. The modern fireplace that fulfills all

The modern fireplace that fulfills all modern day requirements—used with gas or electricity.

Large variety of attractive models in brick, stone, wood, etc., available. Furnished complete—ready to be installed by a handy man—shipped anywhere.

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#### The READYBUILT PRODUCTS COMPANY 1705-23 McHenry Street Baltimore 23, Md.



# AMERICAN DEVICE'S Adjustable Built-in MAIL BOX

fits any size wall

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#### AMERICAN DEVICE

Manufacturing Co.
RED BUD, ILLINOIS, U. S. A.



METAL conduit used for surface raceways for telephone lines is easy to install in remodeling operations

(Continued from page 206)

Copper gutters, roof valleys and flashings provide durability which equalizes somewhat higher first-cost, and manufacturers provide a full range of stock gutters, downspouts, elbows, downspout heads, nails, and hangers.

#### Ducts and Pipe

Ductwork, pipe, conduit, and tubing are considered more in detail in the sections on heating, plumbing, and wiring the house. Nearly all types of structural metals are involved at some point, and manufacturers are constantly working with heating, plumbing, and electrical contractors to develop better products to serve these needs.

#### Cornices, Edgings

Architectural extruded metals may be bronze, brass, aluminum, nickelsilver alloy, copper, or other special alloys. As extrusions are wrought under pressure, they are usually free from blowholes and other defects common to castings, and have a high tensile strength. Extruded shapes can thus be used with thinner crosssections, and finished with less labor,

Primarily, such shapes include opening frames, entablatures, cornices, bars, flutings, pilasters, caps, counter screens, hand rails, edgings and beadings of all kinds, Some manufacturers stock standard shapes for



CEILINGS made with structural steel panels which are easy to install, have great rigidity, and fit into most designs

If you know
the Trade Name
but not the maker—
LOOK it UP
here



Catalog

Pirectory

Light Construction Industry

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In the TRADE NAMES Section

This is one of 3 sections printed on colored stock to help speed up your buying of building products.

After each trade name appears the name of the Manufacturer. Then turn to the Manufacturers Section (III) for complete name and address.

Get acquainted with your AMERICAN BUILDER Catalog-Directory. Put it to work for you. It can save you valuable time and money.

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#### AMERICAN BUILDER

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CHICAGO 3, ILL.



## FASTER - EASIER - FOOLPROOF

Here's the sink frame that really clamps coverings into place to stay—seals out moisture—hugs the sink with a tight, permanent, fit. Coverings can't work loose or curl up!

Easier to install, too! Sink-Lok frames overlap edges of the covering a full quarter-inch. No close scribing, cutting or fitting of materials. No special tools needed. No mortising or rabbeting of the sink-well hole—just cut a straight-walled opening for the sink. The frame anchors in place from underneath the sink top—supports the sink itself in addition to sealing the joint between the covering and the sink. No bolts or screws through the counter top.

Sink-Lok Frames are available for flat-rim sinks of any size, with either round or square corners, for installation on wood or plywood sink-cabinet tops from %" to 1" thick, covered with any material up to 1%-inch thick. Also available for most vitreous china sinks.

Write for complete information.

U.S. PAT. NO. 2440741



terial up to 1/e". Also available in Model No. 8-725 for 7/e" to 1" plywood tops, and in Model No. C-726 for vitreous ching sinks.

The BaT Metals Co.

## HEATFORM'

The Superior Heat Circulating Fireplace • most efficient and durable of all •

#### Comparison Proves Greater Heat Delivery



HEATFORM Model "A" Eight stock sizes 24" to 72"

#### -because:

- More Heating Surface air chambers surround firebox and upper front and side walls of the throat
- Larger conl air inlets and warm air outlets produce greater air circulation and more leat
- Contact of air to all heating surfaces due to multiple connecting air passages through and around the throat
- The heat surface of the dome and round air flues through the throat add one-third more heating surface

#### LONGER LIFE

-because:

- Ribbed reinforced firebox adds necessary afteright to flat metal to control warpage. The ribs also add to the appearance of the firebox
- The larger air finet and outlet capacity produces a greater volume of air circulation which removes the heat from the hot metal faster; thus preventing redhot deteriorating temperatures
- Masonry downdraft shelf no exposed metal beneath chimney flue to rust out



HEATFORM Model "S" View of Fire from Front & Side

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SUPERIOR FORM DAMPER the Architects' Friend

 Saves labor time; no forms to build, me bricks to cut, no throat to plaster. Eliminates cracking of masonry by use of rockwool and detached lintel bar. Heavy steel construction lifetime service.

Write for complete dealer information and distributor stock nearest you

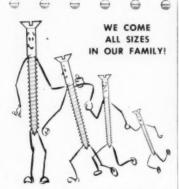
#### SUPERIOR FIREPLACE CO.

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The Pioneer Designers and Builders of Heat Circulating Fireplaces



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(Slotted or Phillips Heads

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MATERIALS are the finest obtainable . high grade extruded brass wire . . . top quality selected sulphur steel wire . . . best nickel alloy.

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SPECIAL SCREWS made to your specifications at reasonable cost.

PACKAGING is sturdy for easy handling. Bulk screws are packaged in indestructible steel cans with sealed locking covers.

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# SOUTHERN SCREW COMPANY

118 RICKERT STREET STATESVILLE, NORTH CAROLINA





CORRUGATED window well. Several manufacturers provide round, oblong, and square types

these purposes, and several will produce extrusions to the design of the architect on order.

#### SHEETS AND PANELS

Metal sheets and panels for use in flooring, ceiling, roofing, and siding applications, are considered at length in other sections of this issue. There are, however, a number of special types of sheets and panels which should be mentioned.

One manufacturer, for example, has devised an interlocking panel which forms floor, ceiling, and joists in one operation, also allowing space for large pipes and ducts, and providing convection surface to coordinate with radiant heating coils. The upper surface is prime painted, ready for flooring, and the lower surface may be left exposed for heam ceiling or may be covered with wire lath and plaster as desired. The same panels may be used vertically for partitions,

A number of manufacturers produce steel deck plates, some of which are designed to use either in forming floors or as steel forms for laying concrete floor slab. Some are also built with special acoustical properties. These all-steel panels and members have the advantages of low initial cost, flexibility in handling, ease



CORRUGATED roofing (galvanized) receiving protective coating of metallic paint



Send for our quotation on all your railing and column work. It pays! Send sketches or ask for our suggested designs.

## CINCINNAII IRON FENCE CO.

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Designers-Crafters of Ornamental Ironwork, Fencing and Gates.



USERS REPORT, Apr. 4—
"Fast replacing the old fashioned unthreaded nail!"

Plated for maximum rust resistance. Early delivery in packages and in bulk, Write for prices and samples.

## JOHN HASSALL INC.

192 CLAY STREET Brooking 22, N. Y.

AMERICAN BUILDER



TYPICAL attractive fireplace in home of modern design utilizing a metal fireplace unit with hot air grilles located in wall near ceiling and cold air return grilles in baseboard at either side

of installation, and strength. Some types are also made of aluminum.

Corrugated roofing and siding is available in aluminum and galvanized sheet metal. Aluminum is non-rotting, light weight, easy to handle, provides long-term service.

Corrugated steel sheets offer the advantage of light weight with great strength and rigitity, and are used in the familiar round-type Quonset structure as well as in numerous all-steel storage and utility buildings erected with conventional square design and hung on metal framing members.

#### SPECIAL DOORS

While most kinds of doors are discussed in full detail in the section on windows and doors, certain special purpose doors are normally manufactured as complete "package" units made of metal.

STEEL access panel to provide access to drainage pipe in basementless building. Installed with metal wall around area of panel





Write for information on the complete line of Exclude quality steels for construction.

PACKAGE receivers are available in various trims and colors, made of insulated steel, with inner and outer doors



LACLEDE STEEL COMPANY

Street, Contractors.

# DUR-O-WAL

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IN GREATER SUPPLY!

• Duro-O wal. . . the patented steel reinforcing for every type of masonry wall . . is being shipped on stepped-up schedules. This backbone of steel is economical, lays fast prevents unsightly cracks. Trussed design incorporates architecture's oldest reinforcing principle.

Trussed design incorporates drchitecture's oldest reinforcing principle.

CEDAR RAPIDS BLOCK COMPANY
Dur-O-wal Div. 638- 12 Ave SW
Cedar Rapids, Iewa

DUR-O-WAL
PRODUCTS, INC.
P. O. Box 628
Syrocuse 1, N. Y.





DESIGN of this mail plate makes it draftfree. Available in polished brass, bronze. dull bronze, dull nickel, and chrome finishes

#### Access Doors

Access doors include roof hatches, ceiling hatches, floor hatches, and scuttles, Made of steel or aluminum, roof scuttles or hatches provide easily-installed, trouble-free access to the roof of the building. The only requirement is that a roof opening of the proper size be provided. The batch is lined up over this opening and nailed or bolted to the rough roofing through holes provided in the flanges of the unit. They are wateright and fireproof and can be set up to lock from either inside or outside.

Heavy-duty compensating spring hinges are used in most types, and ingustation is also built into the unit. Floor and ceiling hatches are made so that the door fits flush with floor or ceiling. Floor hatches in some instances have either smooth or parterned surface to prevent slipping.

Metals available include copper alloys, galvanized sheet metal, aluminum, bronze, and stainless steel. Some models have a locking feature to hold the door open so that it cannot slam shut, as well as rubberweatherstripping to prevent leaking of air or moisture. Flush steel panels are also available for installation into walls for ready access to concealed wall spaces, valves, traps, dampers,

#### Sidewalk Elevator and Pit Doors

Elevator doors are available in split-type for how strike elevators, or single-piece platform type for corner post elevators. Transformer vault and pit doors are made in standard sizes with single-leaf construction. Pit doors with channel-type frames keep dirt and dust off the floor below if used indoors.

#### Basement and Bulkhead Doors

Doors for use with either frame or masonry construction are available as package units which are attractive, designed for long life, and easy to



STEEL cellar door and door frame units are sturdy, fire-resistant, easily installed and operated. Made in either copper-steel or aluminum and in various standard aires

install. Where the unit ioins either frame or masonry, special flanges are provided to make a secure seal against rain and dirt.

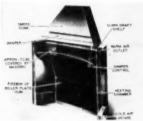
They are built to be resistant to corrosion, water, termites, to be burglar-proof and to function almost indefinitely. Units are shipped knocked down, with necessary screws and fittings and complete instructions from the manufacturer. These instructions should be followed carefully, especially as they pertain to caulking and sealing joints between masonry or frame and metal unit.

#### Ashpit and Cleanout Doors

Installed in the bottom of chimney or stack for easy removal of soot and ashes, ashpit and cleanout doors in some instances are cast iron, but in most modern types are made of steel with welded parts and heavy-duty hinges to give long wear. Ornamental styles are available for use with fireplaces in homes without basements. Ash dumps and fireplace dampers are also available as stock units easy to install where provision is made for them in advance.

#### Chute Doors

Both foundation chutes and gradeline chutes for coal may be set up to utilize ready-made door units which



DETAILS of metal fireplace unit shown above include features necessary for good air circulation to make fireplace a real heating unit



STAIR railings provide fertile field for ornamentation with metal work in iron. bronze and other alloys

accompany the chute. Mail chutes with suitable doors are also available for the builder who wishes to include them in his specifications. Many modern homes enjoy the convenience of a package-receiver, which is usually an insulated steel receptacle built into the wall with an outer and an inner door. Laundry chute doors are also available from stock from several manufacturers.

#### FIREPLACE UNITS

Old-fashioned fireplaces wasted heat, smoked up rooms, and caused discomfort in various ways. For the builder who has a fireplace included in his plans, there are several fireplace heating units which are designed by engineers to provide added comfort and efficient fuel consump-

While not recommended as a substitute for heating plants in northern climates, efficient fireplaces can save fuel bills by providing heat during many cool weather days. Units which circulate the heat to every part of the room or house through ducts are available in designs that permit their use with a wide range of ornamental fireplace types.

Firebox, throat, and flues are designed for correct operation, and dampers, down-draft shelves, and smoke domes are all built into correctly fabricated units.

Use of such units removes all guesswork from fireplace construction, as the only task remaining is to make provision for the unit selected in basic building planning, and build the ornamental masonry or stone fireplace around the unit proper. Should it be desired to heat more than one room with the unit, it should be located against an inner wall with heat outlets opening into the other rooms. Outlets may be arranged above the





#### Arteraft manufactures:

Fireplace Equipment - Railings - Grills - Balonies - Marquee - Theatre Lighting - Steel Stairs-Gates-Fire Escapes-Hoods-Drapery Rods-Metal Furniture-Church Lighting-Sign brackets, plus all kinds of architectural

Arteraft produces the finest, most exacting custom-made ernamental iron work from specifications at amazingly low cost. This is in addition to our regular, low-priced, stock ornomental work. Write today for more information, or send specifications direct.

Delivery: Two weeks for custom work Immediate delivery for stock items.

Terms: Payment with order or C.O.D.

#### Artcraft Ornamental Iron Co.

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help owners
decide on the
design and
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fireplaces



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place Ideas"		your	1100	DOUBL	100	

I am a Builder   Architect   Deale	t [

Name	
Address	*********

PRICE FIREPLACE HEATER & TANK CORPORATION 195 West Austin Street Buffalo 7, New York



GRILLE or louvre for ceiling fan is a typical installation. Similar metal louvres are also popular in doors to control drafts and room ventilation

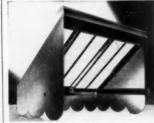
unit or at the side, through the top of the mantel, below the mantel, and with side outlets above or below the mantel. Units are also available for corner locations and for fireplaces designed with side and back enclosed with the other side and front open.

#### ORNAMENTAL METAL WORK

Ornamental metal work includes ornamental castings, wrought iron pieces, gates, canopies, fences, railings, brackets, grilles, window bars, hand rails, trellises, lamps, ornamental stairs and doors, and posts. Perhaps the most common material scast iron, although many pieces are now made of aluminum and bronze, Lettering is available for use in smaller commercial buildings for signs, name plates, and similar purposes.

#### SHUTTERS AND LOUVRES, JALOUSIES

Modern door construction frequently utilizes jalousies or louvres, the primary purpose of which is to provide adequate ventilation in rooms, corridors, and closets. While jalousies or louvres are available with wood or glass slats, and one manufacturer at least is making glass jalousie-style windows, the greatest demand is for the metal jalousie unit for installation into doors. Made of furniture steel, aluminum, or other metals, and of almost any size, these units are shipped complete and ready for installation from several manufacturers.



POPULAR for small homes, metal awnings over both windows and doorways keep out rain, sun glare

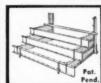




#### FLEXIBLE WALL and HOUSE FORMS

Build the home of the future — sturdy, heat-conserving, re-inforced concrete. Fire, bomb and cyclone protection. State franchises available.

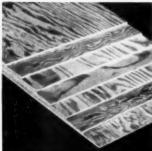
#### STEP FORMS



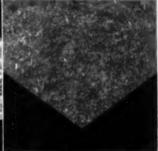
Cast a perfect step every time. Quick-setting, adjustable I to 6 feet. Time and labor saved on a few jobs pays for original cost. Recommendations of satisfied customers increase your business. Agents inquiries invited.

Write for full particulars

ADAPTO CORPORATION 4060 N. 100 St., Milwaukee 16, Wis.



SEVEN-PLY plywood showing the grain direction change with each alternating sheet of veneer



THE NATURAL BURL of standard bardboard is readily identified in this close-up of a sample

PLYWOOD is an engineered panel material made up of three or more layers of veneers bonded together with glue, with the grain direction of each ply at right angles to that in the adjacent ply. An odd number of plies is nearly always used to obtain balanced construction. While plywood panels are produced in a wide range of both soft and hardwoods, over 90 per cent of all plywood used in light construction is supplied by the Douglas fir plywood industry. Douglas fir plywood panels are produced under rigid performance standards and each carries a grade-mark for ready identification (see illustration page 220).

#### SHEATHING, SUBFLOOR-ING, ROOF DECKING

Plyscord is the recommended grade of plywood for sheathing, subflooring and roof decking. Certain veneer defects not affecting its serviceability may appear on both surfaces. It has moisture-resistant bonding.

Plyscord A-inch thick is recommended for use as roof sheathing over rafters 16 inches on center under both wood and asphalt shingles. Wood shingles, however, must be applied with nailing strips unless ½-inch plywood is used. The rafters may be spaced 24 inches on center when ½-inch plywood is used.

The minimum thicknesses of Plys-

cord when used for wall sheathing are fa-inch for 16-inch stud spacing and 3%-inch for 24-inch stud spacing. Corner braces in house framing may be eliminated when 4 by 8-foot sheets of plywood are nailed with 6d nails, 6 inches on center on all edges and 12 inches on center at intermediate bearings. When se-inch plywood is applied as wall sheathing, wood shingles may be fastened directly with ring-barbed nails. If barbed nails are not used, nailing strips must be employed. Likewise, ring-barbed nails must be used for application of asbestos cement shingles or siding to 16inch plywood wall sheathing.

One-half inch plywood is permitted as a base for wood finish and all composition types of flooring when the following application methods are followed: (a) joist spacing not more than 16 inches on center; (b) blocking installed under all panel edges at right angles to joists and (c) nailed securely 6 inches on center at all edges and 10 inches on center at intermediate framing members, Further, joist spacing may be increased to 20 inches if 5%-inch plywood is used and to 24 inches if 34-inch plywood is used when requirements (b) and (c) above are followed. Lav panels with outer grain across the joists.

In all cases correct nailing techniques must be followed for fastening the plywood and other components of floors, walls, and roofs. For nailing in . 3%- and ½-inch Plyscord, 6d common nails should be used. The 5%-inch Plyscord should be fastened with 8d common nails. Nails should be spaced not more than six inches apart at the edges of panels and not more than 12 inches apart on other bearings when plywood is used for sheathing or subflooring.

In applying Plyscord, especially on the roof, the edges should be protected

Recommended Thicknesses for PLYSCORD ROOF SHEATHING [Panels Lengthwise Across Refters]

ROOF LOAD*	RAFTER SPACING	THICKNESS
20 lb./sq. ft.	18 in. 22 in 27 in. 33 in.	5/16 in. 3/8 in. 1/2 in. 5/8 in.
40 lb./sq. ft.	12 in. 16 in. 21 in. 24 in.	5/16 in. 3/8 in. 1/2 in. 5/8 in.

\*For deflection limited to 1/360 of span.

(Continued on page 220)

# allwood HARDBOARD

### for the Building men of America

a new quality Douglas fir hardboard to help you save money ...save time...save material. ALLWOOD hardboard... amazingly tough...amazingly versatile...challenging comparison as a new leader in quality hardboard. Produced in the mountain forests of Oregon in a plant designed for maximum efficiency and positive quality control. Get all the facts on this new ALLWOOD hardboard. Distributed nationally by SIMPSON LOGGING COMPANY, Seattle, Washington.

Write for FREE booklet: The ALLWOOD Story

\*Trade Mark of the Oregon Lumber Co.

> OREGON LUMBER COMPANY

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Manufacturers of Lumbs and Lumber Specialties along 1800 THERE'S A

NEW ADDITION
TO OUR FAMILY OF
QUALITY PRODUCTS

SINGLES ON
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DOUGLAS FIR and WESTERN
HEMLOCK LUMBER
REDWOOD LUMBER
DOUGLAS FIR PLYWOOD
DOUGLAS FIR and HEMLOCK

WOODFIBER INSULATING BOARD PRODUCTS ACOUSTICAL PRODUCTS SIMPSON ALLWOOD HARDBOARD

DOORS

Simpson Allwood Hardboard is manufactured by the Oregon Lumber Company, Dee, Oregon.

#### SIMPSON LOGGING COMPANY

1065 Stuart Bldg., Seattle 1, Washington

**NOW**—to the already large family of Simpson quality forest products, we add HARDBOARD. This new product is available through better retail lumber dealers.

Simpson Allwood Hardboard is manufactured of Douglas fir fibers under rigid manufacturing controls to assure uniform quality. The line is complete—in thicknesses, sizes and types—and meets the demands and requirements of architects, builders, commercial users, farmers and home owners.

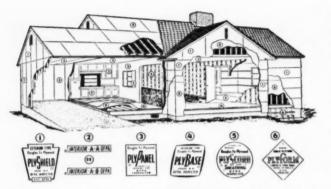
#### THESE ARE THE SIMPSON ALLWOOD HARDBOARDS

- Standard Hardboard
- Black Tempered Hardboard
- Tempered Hardboard
- Hardlite (lighter density)
- Underlayment
- Wall Tile

#### MAIL THIS COUPON

SIMPSON LOGGING COMPANY
Sales Division, 1065 Stuart Bldg., Seattle 1, Washington
Please send me sample and further information about SIMPSON ALLWOOD
HARDBOARD.

Firm name
Address
City
Zone State
Attention of



CUTAWAY shows where the various grades of Douglas fir plywood are used in a building. For ready identification, panels are grade-marked before leaving the factory. The industry grade trademarks shown assure the user that the panels are genuine Douglas fir plywood manufactured in strict accordance with U. S. Commercial Standard CS45.48

(Continued from page 218A)

from the weather along cornices and rakes by a lumber strip, by flashing or by a strip of exterior waterproof type plywood.

Cover largest open areas first when applying sheathing and subflooring. Experienced crews find that an allowance of five per cent for waste is adequate when plywood is used.

#### FOR EXTERIORS

For exterior use, only the exterior grades of plywoods, with waterproof adhesive bonding, should be applied. Plyshield is specifically produced for use as siding; one face is sound veneer and ready for any type of finishing.

The minimum thickness of plywood recommended for siding is 3½-inch, although, for economy in some types of construction, ½-inch panels are

PLYSCORD SUB FLOOR

EXTERIOR WALL section running across the joists. First joist is set 5/16-inch outside of stud line to provide for 5/16-inch plywood panel. This simplifies use of standard 4 by 8-foot sheathing panels applied either vertically or horisontally used successfully. For construction of single-wall structures, such as warehouses, ½-inch or thicker Plyshield siding has been used with success and economy.

Exterior plywood siding should be applied with non-corrosive nails. The common, hot-dipped galvanized type is satisfactory. Nailing should be with 6d common or with 6d box nails for 3\(\frac{4}{8}\)-inch siding and 8d for thicker siding. When full-size 4 by 8-foot or longer panels are used, fastenings should be spaced not more than 6 inches on center at panel edges and 12 inches elsewhere. When narrow 12-to 24-inch panels are installed as lapsiding, nailing at panel ends should be not more than 4 inches on centers.

In applying exterior plywood for siding there are several simple and easily adapted methods for bandling joints between the panels. Some suggested treatments for both horizontal and vertical joints as well as water table details are shown on these pages.

All edges of plywood siding, no matter whether butted, veed, covered, or exposed, should be bedded in a thick lead and oil paste or other suitable compound. This is knifed on as the panels are applied. Filler or bedding specifications are: 100 pounds of paste white lead, one and three-quarters gallons of raw linseed oil and one pint of dryer. Reduce dryer to one-half pint if boiled linseed oil is used.

If plywood is installed as lapped siding, the lap should be at least two inches and bedded in paste. The vertical joint should be backed with narrow strips of wood shingles tacked

#### DOUGLAS FIR PLYWOOD

Stock Thicknesses, Widths and Lengths

INTERIOR A-A, INTERIOR A-B, PLYPANEL and PLYBASE Sizes:

Thicknesses: 3 tel. 1/4, 1/6, 1/2, 1/6 and

3/4 inch

Widths: 30, 42, 48 inches

Lengths:

60, 72, 84, 96, 108, 120 and 144 inches

EXTERIOR A-A, EXTERIOR A-B, PLYSHIELD and UTILITY Sizes:

Widths: 30, 36, 42, and 48 inches Lengths: 60, 72, 84, 96, 108, 120

and 144 inches
SHEATHING and PLYSCORD Sizes:

Thicknesses:  $\S_{16},\,\S_{6},\,\S_{2}$  and  $\S_{6}$  inch

Width: 48 inches
Lengths: 96, 108, 120 and 144

inches

PLYFORM Sizes:

Thicknesses: 1/2, 1916, 1/4, 1/4 inch

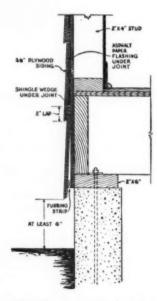
form lines Width: 48 inches

Length: 96 inches

CONCRETE FORM Sizes:

Thicknesses: % and ¾ inch Width: 48 inches

Length: 96 inches



PLYWOOD applied as wide lap siding. A shingle wedge and asphalt paper flashing are used under vertical joints. A two-inch lap is recommended and it should be bedded in lead and oil paste or a similar compound

### Why EXTERIOR Weldtex

is your best bet for all exterior applications

WON'T CHECK
WON'T CRACK
WON'T SHOW GRAIN RISE
STAYS BEAUTIFUL
FOREVER!

and now available in REDWOOD!



Exterior Weldtex\* is the most beautiful and practical exterior plywood panel ever developed.

Right at home on the finest custom-designed dwellings and commercial buildings, Exterior Weldtex is also a natural for moderately-priced houses... gives them a richer, more luxurious look at no extra cost!

Exterior Weldtex has the warmth and beauty that only natural wood can provide . . . with deep, irregularly-cut striations that add a crisp, interesting shadow-line. Furthermore, these striations prevent checking and grain raising . . . and hide nail holes and joints.

In addition to standard Douglas Fir Weldtex, we now offer REDWOOD Weldtex. This new paneling adds the known weather resistance and beauty of redwood to the many Weldtex features.

Exterior Weldtex takes paint or stain perfectly and is approved by F.H.A. for Federal Housing jobs. It comes in large, easily-installed panels 4'x8', 4'x9' and 4'x10'... as well as pre-cut Douglas Fir Weldtex Siding,  $48''x157_8''$ , packed 22 panels in a bundle.

#### Weldtex for Interiors

Interior Weldtex Panels lend themselves to unusual decorative treatments—horizontal, vertical, checkerboard, etc. They come in Douglas Fir, Southern Gum, Philippine Mahogany and California Pine, in sizes: 4'x6', 4'x7', 4'x8' (also 4'x9' and 4'x10' in Fir only).

And don't forget the 12", 16" and 24" Weldtex Squares of Southern Gum – the *newest* way to use this decorative plywood.

You and your workmen will like to work with Weldtex...your customers will be delighted with it. Order today from your Weldwood supplier.

In ordering or specifying Weldtex, please be sure to indicate either *Interior* or *Exterior* Grade, the latter bonded with waterproof resin adhesives and guaranteed against delamination.

#### WELDWOOD® Plywood

Manufactured and distributed by
UNITED STATES PLYWOOD CORPORATION
Largest Plywood Organization in the World

New York 36, N. Y. and U. S.-MENGEL PLYWOODS, INC.

Louisville 1, Ky.



\*U. S. Pat. Nos.: 2286068, 2363492, 2363927, Trade Mark Reg. Branches in Principal Cities • Distributing Units in Chief Trading Areas
Dealers Everywhere

to the studs. The vertical butt joints may also be flashed by a strip of asphalt-impregnated building paper tacked over the shingle and lapped just over the course below. Horizontal edges of plywood used as lapped siding should be beveled slightly so water will drip from the outside edge.

#### FOR INTERIORS

Plypanel is the grade of fir plywood designed for finishing walls, ceilings, partitions, storage walls, cabinets and built-in furniture where only one surface is to be exposed.

Thicknesses most popular for wall paneling are the 3½-inch and 3½-inch panels, while the 3½-, 5½- and 3½-inch thicknesses have widespread use in cabinets, built-ins and doors.

For good wall construction, Plypanels ½-inch thick are recommended, over studs 16 inches on center. Apply panels either vertically or horizontally; the latter affords extra rigidity.

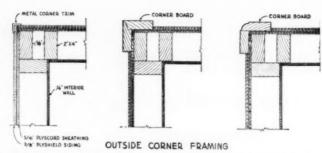
Some building codes require a 2- by 4-inch fire stop about four feet from the floor, between studs. This horizontal member serves as backing for plywood panels and is recommended.

Plywood panels 38-inch-thick are fastened with 6d finish or easing nails spaced 6 inches on center and 14-inch panels are applied with 4d finish nails.

Joints between plywood panels pose

A B
C D
E F

ABOVE are three basic interior plywood wall paneling design suggestions. The best rule to follow is to start paneling at the openings with vertical joints and then divide the plain wall space in an orderly pattern with panels placed in reasonably balanced horizontal or vertical spaces. Where the width of the wall is 10 feet or less, panels may be run



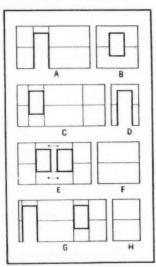
TIGHT JOINTS are essential. The three corner joint treatments shown may be used whether plywood sheets are applied vertically, horizontally or as wide lap siding

no problem under ordinary conditions. In fact, frank recognition of the joints as such can add much to the architectural effect. Panel edges may be butted flush, V-grooved, covered with decorative moldings or have inset moldings.

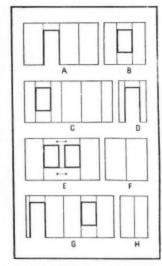
A basic principle in applying plywood paneling is to start at openings with vertical joints and divide plain wall spaces in any preferred, orderly arrangement. Often moldings are applied to obtain horizontal stream-lined effects or a variety of paneled designs. V-grooves, easily made with portable electric routers, can be effectively employed to simulate narrower paneling or to make designs on the panel face. Lapping of panels is particularly effective in ceilings.

Use furring strips when applying plywood over an already plastered wall.

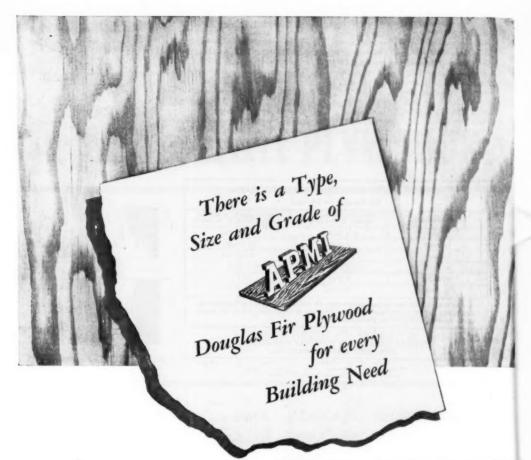
Interior finishing with plywood permits curved surfaces where they are desired. In many commercial installations this is an advantage because fixtures may also be made of plywood to harmonize with walls and ceilings. In developing curved surfaces with plywood, it is often desirable to install the panel to be bent first, and then to fit the flat surfaces. In a varying radius, the sharpest



horizontally in two or three pieces with the openings cut out. Place vertical joints at each side of the top of door and at top and bottom of window openings. If the width of door or window opening is more than jour feet, most designers do not hesitate to place panels horizontally. Combinations of vertical and horizontal arrangements may be used



in the same room with pleasing effect. Panels in 9- and 10-foot lengths are available to help solve special paneling problems. Joints between panels constitute no problem since they can be butted. veed. covered with molding, or handled in any one of the many ways illustrated at right below. Recognition of the joints as such adds to architectural effect



As one of the oldest and largest producers in the industry, Associated makes a type, size and grade of Douglas fir plywood for every building need:

Interior-type: For walls, ceilings, cabinets, built-ins; for sheathing and subflooring.

Exterior-type: For siding, outdoor signs, farm structures, boats of all sizes and shapes.

Sea Swirl (interior and exterior). A beautiful decorative plywood for remodeling and new construction.

Plastic surfaced plywood (exterior-type): For concrete forms, siding for commercial and industrial buildings.

Plyron (interior and exterior). Plywood core between hardboard surfaces. For all types of construction; built-ins, furniture.

All APMI plywood is manufactured in the heart of the Douglas fir region of Oregon; is grademarked and trademarked; is available through branch sales warehouses in major building cities, sold by experienced plywood men. Your inquiries are invited.

#### **BRANCH SALES WAREHOUSES:**

4268 Utah Street, St. Louis, Missouri

4814 Bengal Street, Dallas, Texas

4003 Coyle Street, Houston, Texas 1026 Jay Street, Charlotte, North Carolina

111 Welborn Street, Greenville, South Carolina

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## ASSOCIATED PLYWOOD MILLS, INC. General Offices: tugene, Oregon

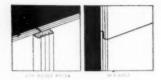
Plywood plants at Eugene and Willamina, Oregen Lumber mill et Roseburg, Oregen curve should be made and secured first. Use of continuous rounded backing, such as band-sawn framing, contributes to a better job and reduces the risk of rupturing the plywood.

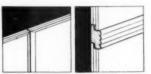
For critical bends it is sometimes advisable to use two layers of thin panels. In using plywood for short radius, it may be soaked in hot water until warmed through. When this is done, only exterior type plywood should be used, and even then it is done at a greater risk of rupture, possible checking, and grain raising,

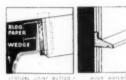
Bends are made more readily across

the grain. Saw kerfing on the concave side of a curve at regular intervals to a depth of about one-half the panel thickness helps materially. For severe bends, panels should be carefully selected for straight grain.

Flush joints for unbroken walls to be textured may be formed successfully with the tape joint procedure. Merely butt the panel edges and fill any openings with Spackle of Swedish putty. Over the joint, a perforated paper wall tape or gauze is imbedded in joint filler compound; when dry, a second layer of filler is applied and





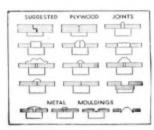






RIZUMTAL JUNT DOUBLE RETAL KLASHI SHIPLARPED - VLBITCAL

WHEN JOINTS are recognized as such and made a part of the architectural design they are usually easier to treat. Above are shown eight popular treatments for plywood siding joints



SUGGESTED joint treatments for interior plywood walls. Wood or metal mouldings may be utilized

feathered out several inches on each side. The joint is sanded smooth before painting or papering. For greatest joint smoothness, panel edges which are to be joined may be beveled slightly, starting two or three inches from the edge, before installation. Other methods of obtaining flush joints include glued shims at panel edges or the gluing of plywood to furring strips nailed to the framework.

(Continued on page 228)

#### APPROXIMATE MINIMUM BENDING RADII

	For Douglas Fir Plywood	
PANEL THICKNESS	APPROXIMATE MINIMUM RADIUS ACROSS GRAIN	APPROXIMATE MINIMUM RADIUS PARALLEL TO GRAIN
1/4 Inch	6½ Inches	10 Inches
1/4 Inch	15 Inches	24 Inches
1/4 Inch	36 Inches	54 Inches
1/2 Inch	6 Feet	8 Feet
1/4 Inch	8 Feet	10 Feet
3/4 Inch	10 Feet	12 Feet

Note:—It should be recognized that an occasional panel may rupture at somewhat longer radius than indicated because of characteristics of the wood (such as short grain) in the particular panel.

#### TYPICAL DOUGLAS FIR PLYWOOD THICKNESSES FOR FARM SERVICE BUILDINGS

	Float Plywood	Joist	Plywood P	Stud	Roo Plywood	Rafter	Notes
	Thickness !	Spacing	Thickness S	pacing	Thickness 5	pacing	
Grain Bins* Round	%"	12"	1/4". "/10"		¾°	24"	12" Height
Rectangular	34"	12"	1/4".	12"	¾"	24"	8" Height
Corn Cribs*	36"	12"	36"	16"	34"	24"	12' Height
Siles*		000.00	1/4" %"		¼". ¾"	. 24"	Glued construction Double skin bottom half, 14' diameter 32' high.
Lining			1/4"		1/4"		
Horse Barn	-		1/2" 3/4"	16"	36"	24"	Inside wall lining.
Stall Partitions	000000		75	24"		*****	
Horse Trailers	000000	0.09111	%"	24"			Glued construction
Calf Barn Partitions	Ricare	*****	3/6" 3/6"	16"	36"	24"	
Loafing Barn	*****	*****	36"	16"	36"	24"	
Milking Barn	*****	00×0×-	3/9"	16"	3/8"	24"	
Milk House	*****	****	1%"	16"	36"	24"	
Hog Farrowing House	14 #	16"	35	16"	36."	24"	1
Portable House Wallowing Trough	1/2"	24"	1/2"	24"	1/4"	10	Glued construction
Feeder	%	24"	1/3"	24"	36"	24"	GINAG CONSTRUCTION
Pig and Lamb Brooders	1/4"	24"	1/4"	24"	1/4"	16"	1
Poultry House	36"	16"	36"	24"	36"	24"	
Portable Brooders	36"	16"	1/4"	24"	1/4"	24"	Glued construction
Watering Tank and Trough	1/2"	24"	1/2"	24"			Glued construction
Tobacco Curing Barn	******	*****	3/6"	16"	1/4"	16"	1
Fruit and Vegetable Storag		65****	3/6"	16"	36"	24"	
Fumigation Chamber	36"	16"	1/4"	16"	1/4"	16"	
Refrigerators and Freezers	36"	16"		16"	1/4"	16"	
Machine Sheds		*****	36"	24"	36"	24"	
Septic Tank Forms	*****	*****	3/. //	24"		******	
Chutes and Air Ducts	******	*****	1/. "				
Doors	Towns.	******	1/2". 3/4"			******	1

\*Design of these structures depends on capacity and dimensions. Check with existing plans, especially for adequate nailing and bracing.

NAILING—For most buildings listed above, general plywood nailing recommendations are as follows: Use 6d common nails for Leaels less than  $V_{\beta^*}$  and common shearwise. Space nails  $\delta_{\beta^*}$  in from edge and 6' on carters at panel edges, 12' on inner bearings.

## VARIETY TO SUIT EVERY BUILDING NEED... Roddiscraft PLYWOODS

### Koddigeraft DOUGLAS FIR



THE PLYWOOD "JACK OF ALL TRADES" PLYPANEL: for a wide range of installations where appearance counts. When manufactured with waterproof glue it is known as PLYSHIELD and can be used for all exterior applications.

PLYSCORD SHEATHING: for walls, roofs, subflooring. Available in interior and exterior types.

PLYFORM: for constant use and re-use for concrete forms sanded both sides - mill-oiled and edge sealed at the factory.

EXTERIOR GRADE FIR PLYWOOD: made with completely waterproof phenolic resin adhesives. For siding, liners, barns, silos, and a wide range of other exterior applications.

#### Koddiscraft HARDWOODS and SOFTWOODS



THE ARISTOCRATS OF MODERN PLYWOODS"

#### MAHOGANY **BLONDE LIMBA** BIRCH MAPLE PRIMA VERA AVODIRE OAK WALNUT KNOTTY PINE GUM CHEN CHEN **VERTICAL GRAIN FIR**

These are top quality plywoods - all materials are carefully processed — bonded with the best adhesives in hot plate presses -sanded to satin smoothness-and carefully stored under proper conditions. You can sell Roddiscraft quality with confidence.

AVAILABLE WHEN YOU WANT IT: A nation-wide warehouse service makes delivery of Roddiscraft Plywood fast and reliable. For complete information - sizes, thickness - prices - and prompt service get in touch with your nearest Roddiscraft dealer.

RODDIS PLYWOOD CORPORATION Marshfield, Wisconsin

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## Beauty, Adaptability, Economy-Get All 3 With Plywood Siding

OF ALL SIDING MATERIALS, Exterior plywood is the most adaptable to various design treatments. It can be used to create board and batten siding . . . flush surface . . . or cut in third or half panel widths and applied as extra-wide lapped siding. It can be used in combination with other materials such as brick or masonry to achieve interesting texture contrasts.

And of all quality siding materials, Exterior plywood is least expensive. Least expensive in two ways: first, Exterior plywood actually costs the same or less per square foot than other quality materials; second, plywood's large size and easy workability speed work, cut labor and application time and costs up to one-third!

Exterior plywood siding is durable, too. It won't shatter, split, or puncture. And the completely waterproof adhesives used between plys are more durable than the wood itself!



## Douglas Fir Plywood

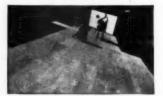
AMERICA'S BUSIEST BUILDING MATERIAL



\*PlyShield® is the siding grade of waterproof-bond Exterior-type plywood. One side is of highest appearance; for economy, limited defects are permitted in back. For use as siding, gable ends, etc. Other Exterior grades with 2 faces of highest appearance are available for single wall partitions, fences, etc.

#### PANEL DISCUSSION

FHA Accepts 3/8" Plywood Over Rafters 24" O. C.



On the basis of recent tests and experience data, Federal Housing Administration now accepts plywood <sup>3</sup>/<sub>8</sub>\*-thick as roof decking over rafters spaced 24\* on centers, according to a letter from Curt Mack, assistant commissioner of the FHA underwriting office, to Douglas Fir Plywood Association.

A revision of FHA Minimum Property Requirements is planned; meanwhile. FHA at Washington (Underwriting Office) will advise any insuring office upon inquiry that 3% plywood over rafters 24" on centers will be accepted. Plywood roof deck thicknesses now accepted by FHA are shown below in tabular form.

late, Tile, sbestos-Cement	Max. Refer Specing	Min. Plywood Thickness
Wood, Asphalt Shingles	16" 24" 24"	5/16"° 3/8"° 1/2"
Slate, Tile, Asbestos-Cement	16" 20" 24"	1/2" 1/2" 5/6"
Flat Roofs	16" 20" 24"	3/8" 1/2" 3/8"

\*Under wood shingles: If plywood is less than 1/2" thick, apply 1" x 2" nailing strips.

A folder giving information regarding use and acceptance of fir plywood in homes built under FHA financing may be had free of charge from Douglas Fir Plywood Association, Tacoma 2, Wash,

#### Plywood Builds Band Shell



The problem was to design a symphonic band shell for the University of Virginia that would be, as nearly as possible, acoustically perfect, light and easily erected, yet amply strong and rigid. To meet these requirements, Architect Floyd E. Johnson, Charlottesville, Va., chose Exterior fir plywood framed with lumber, fir and light steel bow string trusses.

Floor of the structure is 34" Exterior plywood, supported by 2x10 joists over

ADS

large oak timbers. Wall sections are of 14° plywood framed on all four sides by 2x4s. Roof panels are 14° plywood secured to 2x6 framing members. Wall and ceiling panels are bolted together. Self-opening plywood blow panels, 4′x4′, relieve air pressure. Acoustical qualities of the shell have been favorably commented upon by performers and audience alike.

#### Plywood Catalog Available



The 1952 Basic Plywood Construction Catalog, a reprint of the 20-page insert for Sweets File, Architectural, is now available free of charge to architects, engineers, builders and dealers. It contains plywood grade-use data, finishing information, suggested details and plywood construction techniques. Order from Douglas Fir Plywood Association, Tacoma 2, Washington,

### Garden-Room Addition Uses Single Wall Construction



Faced with the problem of creating extra living space to accommodate the needs of his growing family. Architect Whitney R. Smith combined Douglas fir plywood, plate glass and considerable skill to add this large multi-purpose garden-living room to his Los Angeles country home.

Situated in an April-like garden planted 40 years ago, the striking plywood addition creates an intimate link between indoors and out. Physically, this is accomplished by having the floor of the room at the same level as the garden which surrounds the room on four sides. Visually, the slender supports combine with high ceiling windows to permit a smooth, unbroken flow of plywood ceiling paneling outward into the broad plywood soffits.

Architect Smith used a single thickness of ½" Exterior plywood secured to the inside of 4"x4" posts, 4" o.c. Interior ceiling paneling is ½" Interior plywood; soffits are ½" Exterior. Both interior and exterior walls are painted a pleasing greygreen; ceiling and soffit are light-stained.



## Plywood Built-Ins Often Mean The Difference Between and and

No doubt about it, plywood built-ins have buy-appeal. Spacethrifty plywood storage wall, built-in dining bar or crisp kitchen cabinets can often mean the difference between a house that's snapped up the minute it's offered and one that's a drug on the market—an important fact to consider as selling becomes more and more competitive.

And it's so easy to add client and customer-winning distinction to your homes with plywood built-ins. For no other material is so adaptable to specific design and space requirements. With plywood, you can make the built-in fit the house—exactly. No bothersome juggling of "stock size" units. No limit to size, design, finish or color. Plywood works quickly, easily with ordinary tools. It is equally adaptable for construction of shop-fabricated units. Plywood won't split, chip or puncture. It's the logical material for every built-in.

## Plywood



AMERICA'S BUSIEST BUILDING MATERIAL

Portfolio of Prize-Winning Buith-Ins. Valuable collection of designs that will serve as a springboard for your awn imagination. Contains over 30 designs judged best in the national "Better Living Home" architectural contest. For your free copy write Douglas Fir Plywood Association, Tacoma 2, Washington.



#### HARDWOOD PLYWOOD

The application measure set down for fir plywood can generally be followed for hardwood plywoods used on interiors with a few additional cautions. To achieve the best results, furring strips of ½4-inch plywood, cut two inches wide with the grain running the short way, should be nailed to the studding and blocking. By use of the furring strips, individual panels are practically united into a single unit of wall which swelling or shrinking of the building will not affect.

#### CONCRETE FORMS

Two standard grades of fir plywood are especially produced for concrete form use: (1) Plyform, for multiple re-use, made with highly water-resistant but not waterproof adhesives; (2) exterior-type fir plywood, grademarked EXT-DFPA-Concrete Form, with a completely waterproof bond between the plies. Plastic-surfaced plywood is available for constructions requiring the best possible appearance of the concrete surface.

The thickness of plywood to use in

concrete forms depends on the loads, permissible deflection, and spacing of studs, joints or stiffeners. The 3/4-inch and 34-inch are the most popular thicknesses. It is axiomatic that the supporting framework, studs, wales, posts and joists must be constructed for deflection, bending strength and shear in studs and joints and for column action in posts. Plywood requires proper support from studs or joists. The height and rate of pour as well as fluidity affect pressures against the forms and spacing of supports. Values are calculated on panels placed with face grain across the studs:

Thick-	Stud Spec	ing			ction	Loge	imum
% "	12"	1/2	70	of	Span	880	lbs. sq. ft.
3/4"	12"	1/2	70	of	Spen	1,330	Ibs. sq. ft.
3/4"	16"	1/2	70	of	Span	560	lbs. sq. ft.
3/8"	12"	1/3	60	of	Span	660	Ibs. sq. ft.
3/4"	12"	1/3	60	of	Span	1,000	Ibs. sq. ft.
3/4"	16"	1/3	60	of	Span	420	lbs. sq. ft.

In building up concrete form panels, a simple jig for ready spacing of studs and stiffeners is a great time- and labor-saver.

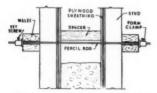
Nails for forms should be as small

Plywood Panel 2 -	Plywood Panel 1
-Stud C Stud B-	Stud A
1°X6°Cleat	NACT .

A METHOD of detailing panel forms is shown here. First set in position is Panel 1; Stud A is the edge stud. The plywood sheathing of Panel 1 laps over Stud A only to the center. This leaves the other half to receive the edge of the sheathing of Panel 2. Stud B, which is the edge stud of Panel 2, is 1/4-inch to 1/2inch less in depth than studs A and C. the 1 by 16-inch cleat bears against studs A and C and is nailed with a double-headed nail to Stud B. This draws the sheathing of Panel 2 snugly against Stud A, making an inconspicuous joint. The sheathing of Panel 2 is not nailed to Stud A. Thus the panels can be stripped easily by removing the wales and the 1 by 6-inch cleats

and as few as practicable. For nailing plywood to studs, use nothing larger than a 5d nail in panels up to 54-inchthick and 6d nails for 34-inch panels. Lining plywood, 34-inch-thick, is applied with 2d nails. When panels lap at corners and, in fact, wherever possible in assembling forms, the use of double-headed nails will facilitate stripping and minimize destruction of lumber.

Plyform panels are edge-sealed at the mill and also are oiled unless otherwise specified. Some builders are having success with special lacquer as a first coat instead of oil. This gives better protection to the plywood and results in a smoother wall. If this system is used, the plywood should be ordered from the mill "not oiled." Where oil is used all panels should receive a uniform coating of a good grade of form oil before each pouring. Too much oil will stain the concrete. A thin film that makes the surface feel greasy to the touch is sufficient. All saw cuts or other workings should be treated with lead and oil, aluminum primer, shellac, or similar material as the job progresses, Any open cracks in joints should be pointed up or calked with lead, putty or plaster-of-Paris filler. The calked joints, after drying, should be care-



A TIE for architectural concrete in which minimum-sized holes from ties are desired. The set screw grips the rod to prevent slipping. Oiling or coating with paraffin will ease removal of rods from concrete

#### POPULAR HARDWOODS USED IN PLYWOODS

NAME	COLOR	FIGURE
Avodire	White	Mild
Ash	Light Tan to Brown	Mild
Birch	White or Red	Mild
Butternut	Light	Mild to Medium
Cherry	Reddish	Normal
Duali	Light Tan	Medium
Elm	Light	Mild
Magnolia	Light	Mild
Mahogany	Red	Stripe, broken stripe plain and crossfire
Maple	White	Birdseye, curly and plain white
Oak	White—Red	Quartered large flake or mild figure, plain sawn and rotary cut
Orientalwood	Light Brown	Highly figured, stripe or crossfire
Satinwood	Golden	Exotic firing
Walnut (American Black)	Light to Dark Brown	Stripe heart, stripe or crossfire
Walnut (Circassian)	Light Brown and Black	Highly figured

With few exceptions, the above hardwood plywood panels can be obtained in the following sizes:

tamed in the	tollowing sizes			
√8- and √4-in Width Length	24 inches 48 inches	30 inches 60 inches	36 inches 64 inches	48 inches 96 inches
3/8-inch, Five Width Length	24 inches 60 inches	30 inches 72 inches	36 inches 84 inches	48 inches 96 inches
Width Length	24 inches 72 inches	30 inches	36 inches	48 inches 96 inches
Width Length	24 inches 60 inches	30 inches 72 inches	36 inches 84 inches	48 inches 96 inches

Nearly all hardwood standard plywood panels are available in 48- by 96-inch sheets. A number of the above-named hardwood plywood panels are available in a wider range of sizes and thicknesses.

## and now there are 23 types and thicknesses of MASONITE PRESDWOOD to do a thousand jobs better!

-in the home

-on the farm

-along Commercial Avenue and Industry Road

#### Newest members of the MASONITE PRESDWOOD family!

Standard DUOLUX Tempered DUOLUX

- -each in 1/4" and 1/4" thicknesses -in 4-ft. and 5-ft. widths, up to 16 ft. long
  - Both sides are super-smooth? Both sides take beautiful, lasting finishes

Use Duolux for every job that needs both surfaces exposed!





The original hardboard. Denser than most woods. Hard, smooth surface on one side, screen impression on other. For interior screen impression on omer. For interior wills, ceilings, etc. In 1/8", 3/6", 1/4" and %" thicknesses.



MASONITE Tempered PRESDWOOD

World's best known hardboard. Tempered to extra hardness; greater strength, abrasion and weather resistance. In brown or black. Each shade in 1/8", 3/4", 1/4" and %" thicknesses.



MASONITE Leatherwood

Offers the luxury and rich appearance of Spanish-grain leather in rigid panel form. openism grain learner in rigid panes form.
Unlimited design possibilities in homes, schools, stores, offices, etc. 1/6" thick.



MASONITE Temprtile®

Tempered for durability and moisture resempered for aurability and mostere re-sistance. Score lines in large panels form attractive 4" tile pattern. 1/4" shick.



Panelwood®

Low-cost panel material for walls and sow-cost panel material for walls and ceilings. Ideal for converting unflnished space into attractive rooms. 1/4" and 1/4" thicknesses.



MASONITE Underlayment

Levels the ridges over sub-floors or old wood floors. Improves wearability when used under linoleum, asphalt tile, rubber used under initiation, aspirationer, respectively, cork tile or carpeting. 3x4-ft, and 4x4-ft, panels, ¼" thick.

MASONITE Concrete Form PRESDWOOD

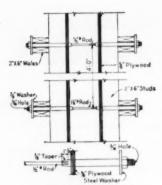
A special Tempered Presdwood, insuring smooth concrete surfaces, virtually eliminating costly hand finishing. 1/4" and 1/4" shicknesses.

BETTER HARDBOARDS FOR BETTER BUILDING



CORPORATION

DEPT. AB-4, BOX 777, CHICAGO 90, ILL.



DETAIL OF FORM BOLT

ON panels for high walls, the selection of an efficient tie between form walls is important. This detail illustrates a practical tie known as a "She-Bolt," suitable for use in most structural concrete work

fully sanded and given an added coat of form oil.

For architectural concrete and smooth surfaces, all joints in forms should be pointed with water putty, patching plaster, or a mixture of equal parts of tallow and Portland centent.

For sharply curved concrete surfaces, with a radius of not less than 15 inches, ½-inch plywood panels make form construction easy. For minimum radius plywood is bent across the grain. For moderate curves thicker Plyform may be used. The 5g-inch panels may be bent to an 8-foot radius crosswise or 10-foot lengthwise.

No metal wedges or tools should be placed against freshly set concrete to pry the forms loose. If wedges are necessary, they should be of wood. The wedging should be done carefully and by degrees with light rapping on the strip to break adhesion.

After stripping, the panels should be immediately and thoroughly cleaned of any concrete particles. Awide blunt blade should be used for this purpose. Projecting nails should be drawn to prevent scarring panels in stacking the sections. If the sections are to be completely dismantled, the plywood panels should be stacked



TWO suggested treatments for joining plywood at interior paneling corners

evenly on a dry and level platform and protected from the sun and rain.

#### MINIMUM BENDING RADII

		Heated Equipment Bending Forms Heated to 300°-450°F		Cold Moist Bends		Cold Dry Bends	
		Smooth Side Out	Smooth Side In	Smooth Side Out	Smooth Side In	Smooth Side Out	Smooth Side In
Standard Hardboard	1/8"	21/2"	2"	8"	4"	12"	10"
	3/16"	31/2"	21/2"	12"	6"	18"	12"
	1/4"	5"	4"	18"	14"	26"	22"
	5/16"	6"	5"	28"	16"	40"	28"
Tempered Hardboard	1/8"	21/2"	2"	4"	31/2"	9"	6"
	3/16"	3"	21/2"	8"	51/2"	13"	10"
	1/4"	4"	3"	16"	10"	24"	18"
	5/16"	6"	5"	24"	14"	36"	24"
Leather textured Hardboa	rd 1/8"	3	19	10	)"	14	11

TABLE showing minimum bending radii for hardboards by thickness and type

#### PLYWOOD ON THE FARM

Because plywood used in farm service structures is constantly or repeatedly exposed to weather, to wetting during cleaning, or to high humidities (as in dairy barns), only the exterior grades with waterproof adhesive bond should be used.

Plywood is especially valuable for use in portable farm buildings such as poultry brooder houses, hog houses, turkey shelters, and range sheds. The portability factor is of prime importance. By using recommended grades and thicknesses of plywood for such structures, weight can be reduced as much as one-half and their useful life extended immeasurably. Plans may be obtained by builders and dealers either from their own state agricultural institutions or from the Douglas Fir Plywood Association.

#### HARDBOARDS

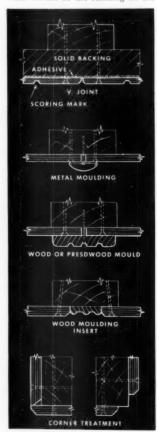
#### Types and Uses

Hardboards are panels processed from ligno-cellulose fibers which are the result of exploding wood chips under high-pressure steam. The fibers are then compressed into the desired panel thickness and density in thermal hydraulic presses. A quick reference chart shown on these pages gives the physical properties and panel sizes available for the seven basic types of structural and surface-finishing hardboards.

Hardboard is known as "the wonder wood of 1,000 uses." It is extensively used as a material for modernizing commercial interiors and exteriors, for cabinets and other built-in features in houses, and for bevel siding in home building. It is flexible and can be applied in curved designs. The surface is hard and resistant to dents and wear, and is an excellent base for any kind of finish.

#### Preliminary Conditioning

All hardboards should be preexpanded before application. When using tempered hardboard for interior use the panels should be pre-expanded by applying cold water to the reverse (screen) side, at the same time scrubbing with a broom or brush. No water should be left standing on the



SUGGESTED joint treatments for hardboard interior paneling. A slight space between panels is recommended

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The quality of Harbor products goes far beyond accepted standards. Result: 1—greater repeat business for dealers who feature Harbor products; 2—better jobs for the dealer who features Harbor products; 3—better value for the ultimate consumer. Check with any Harbor dealer or user. You'll find they agree: Harbor does turn out extra-quality materials, made better to serve better.



Super-Herbord, the original Exterior-type plywood, is better for morine uses



Harborite, the original shrasionresistant, plastic-faced plywood panel

#### Harwood WESTERN SOFTWOOD

Dependable quality western woods, —the nation's familitar building material—are sold under the name of Harwood. Manufactured at Riddle, Oregon, from our adjacent timber. Harwood fix, pine and hemlook lumber resches the dealer, apecifier and user after careful selection for quality and grade.



Herwood lumber, tough and strong for dependability

## Harborite PLASTIC-FACED PLYWOOD

Durable, rugged SUPER Harbord Eaterior-type panels—with tough, hard, smooth faces of resin-impregnated plastic fiber permanently fused to the plywood core: that's Harborite. It brings you all the strength and structural values of exterior plywood, plus the appearance value, check-free qualities and extra durability of a superior plastic vovelay. Harborite is a construction, industrial and utility panel for soling, sofits, cabnet work, sayns, toya

. . . for siding and lining railroad cars, trucks, trailers, etc.

#### HARBORITE GIANT PANELS

Giant panels of Harborite plasticfaced plywood are manufactured to order for special jobs requiring the odvantages of an "extra-size" overlay panel. Harbor's 10 12 sourt are produces a superior joint Standard overlay weight in 65/65, Additional plastic facing on order.

## SVPER-Harbord

THE ORIGINAL EXTERIOR-TYPE DOUGLAS FIR PLYWOOD

FOR YEARS the preferred panel for all outdoor and marine uses, SUPER-Harbord exceeds Commercial Standard specifications in four important respects: 1. Heartwood only is used throughout; 2. Gore veneers are precision jointed to minimize voids; 3. Inner

plys are B grade, with defects repaired to produce a "solid" panel face to back; A After hot-pressing, panels are tempered to restore proper moisture content. The result is a uniform, extrastrong Exterior panel of double dependability—the accepted standard for superior performance.



Precision-jointed

## SUPER-Harbord

Recognised for more than a decadna the finest fir panel for multiplere-use concrete form work demanding relatively high architectural finish. Superior corgives it stamina to withstandrugged service.

## SUPER-Harbord

Produced to order by joining standard SUPER-Harbord panels with a 1 to 12 ratio scart joint. Any length, with a meatimum width of 9' unnanded (8'6'' sanded). Any width, with a maximum length of 9' unsanded (8'6'' sanded).

#### Harbord INTERIOR-TYPE PLYWOOD

A quality moisture-resistant panel in all standard industry appearance grades for interior real wood paneling, cobinets, cheathing, subflooring, built-ine, ind-our furniture, displays and interior industrial applications.

## Harbord

The original concrete form panel—preferred for 20 years on concrete form jobs where limited re-use will write off the cost. Harbord Plycrete is edge-sealed and oiled at the factory for user convenience. Both faces amouthly sanded,

## Harbor Plywood Corporation GENERAL OFFICES, ABERDEEN, WASHINGTON

HARBOR PLYWOOD CORPORATION BRANCHES

Newbord Mercentile Port Deal, P. C. Sen 940 Aberdeen, Wash. Harber Plywood Corporation 1161 Ridge Avence, S. W. Allento J. Go. Harber Plywood Corporation 1444 West Cornell Reed

Nerbor Plywood Corporation of Indiana 511 Be yallier St. Cindonati, O.

P. O. Sex 2146, 802 M. Seme Are Tomps, Fis.

Narbor Ply road Corporation 2355 Dennis St. Jackson-His 4, Pla.

Herber Plywood Corporation of Collifornia 1631 Papier Street Collins Collins Horber Plywood Corpore of Southern Collevels 235 South Alexande St. Los America 12 Colf.

of California 2095 - 3rd St. San Francisco, Calif.

Norther Physical Corporate of Indiana 1001 East New York St. Indianasells 7, Ind. smooth surface or boards will not retain their original color. After the surface has turned a dark brown color, stack screen side to screen side and allow the board to stand for 12 to 16 hours. Then apply in this damp condition.

When using tempered hardboard for exterior finish, follow the same pre-expansion process as above, but let the board stand for 24 hours before applying.

Hardboards with tile face or leather finish have a lower rate of water absorption. To pre-expand such hard-boards, it is necessary to stack, sereen side to screen side, with wet cloths or newspapers between the panels, and allow to stand for 12 to 16 hours. Cover stacks to reduce evaporation.

#### Working with Hardboards

Use typical woodworking procedures and ordinary carpenter's tools when building with hardboards. Panels can be sawed, planed, routed, drilled, punched, shaped or bent into simple curves. Just observe these three "don'ts": Don't toenail; don't drive nails in the edges; don't nail moulding, etc., onto hardboards without any backing, for the hardboard will not hold the shank firmly.

The cross-cut saw with 8 to 12 points per inch and a No. 6 set should be used for straight cutting. Pressure should be little more than the weight of the saw. Power saws save time and may be used. Use a coping or compass saw for cutting irregular, curved and inside edges. Turn the intended exposed surface up when cutting. This procedure will leave a sharper corner on the face edge in addition to helping protect the face side of the panel.

Inch	Dimensions in Feet	Lbs. per
Thick	Dimensions in Feet	Sq. Ft.
Standard		
1/6	4x12 4x10 4x9 4x8 4x7 4x6 4x5 4x4 4x3	0.76
316	4x12 4x10 4x9 4x8 4x7 4x6 4x5 4x4* 4x3*	1.01
1/4	4x12 4x10* 4x9 4x8* 4x6* 4x4* 4x3*	1.36
916	4x12 4x10* 4x9 4x8* 4x6* 4x4* 4x3*	1.72
Panelwood		
3165	4x12 4x10 4x8 4x4 4x3	0.90
Tempered		
1/8	4x12 4x10 4x9 4x8 4x7 4x6 4x5 4x4 4x3	0.79
316	4x12 4x10 4x9 4x8 4x7 4x6 4x5 4x4* 4x3*	1.10
1/4	4x12 4x10* 4x9* 4x8* 4x6* 4x4* 4x3*	1.42
916	4x12 4x10* 4x9* 4x8* 4x6* 4x4* 4x3*	1.76
Black Tempere	d	
1/0	4x12 4x10* 4x8* 4x6* 4x4* 4x3*	0.79
316	4x12 4x10* 4x8* 4x6* 4x4* 4x3*	1.10
1/4	4x12 4x10* 4x8* 4x6* 4x4* 4x3*	1.42
916	4x12 4x10* 4x8* 4x6* 4x4* 4x3*	1.76
Concrete Form		
316	4x12 4x10* 4x8*	1.13
1/4	4x12 4x10* 4x8*	1.46
Tile Finish		
1/a	4x12 4x10* 4x8 4x6* 4x5* 4x4 4x3	0.84
Leather Finish		
1/a	4x12 4x10* 4x9* 4x8 4x7* 4x6 4x4* 4x3*	0.84

Beveled or rounded corners leave an attractive edge treatment and are easily obtained by using an ordinary plane or beveling plane. Keep the blade setting consistent for an edge treatment with continuity of even depth and angle.

Holes should be drilled if screws are to be used as fastenings. Counterbore holes if the screw head is to be flush or below the surface. For circular holes, a twist drill will work more satisfactorily than an auger bit.

For concealed nail heads, use finishing or easing nails and set with a nail set. Then fill with putty or plastic wood, over the head, after the prime coat of paint has been applied.

#### Making Bends

Hardboards can be bent into simple curves by the cold dry, cold moist, or the hot method. The method used depends upon the radius of the curve desired. (See bending radii chart).

The cold dry method consists of bending the panel around the permanent back form or frame with no special preparation. Always start nailing from one end of the panel and continue to attach the panel as it is bent around supporting members.

#### RECOMMENDED NAILS FOR FASTENING VARIOUS TYPES OF HARDBOARDS

APPLICATION	TYPE OF MASQUITE HARRSDARP	Thickmass	foto-modilers Supports	Around Edges	SIZE AND TYPE OF MAR.	Maris Por Found	11/4" BRAD
		N.	12" thru body"	4"	No coong nada	835 805	
INTERIOR	Samparad Frandwood and Samparad Prosdwood			-	1/5 cooning mails	475	11/4" FINISHING NAIL
WALLS AND		5/	6	E.	Try - Linching nails	583	C-11111
CBILINGS	Parallelad #	84°	6"	4"	T's finishing nests L's finishing nests L's sunfersunk nests	635 805 700	114" CASING NAIL
	Leatherwood and Temprile g	16"	12 thru bady*	-	1's tox rails 1's 16 ga brads	635	
PHOSELAYMENT	Underlayment	.215"	6" thru body	6.	I's' sing grooved note that head I's' drive screes flat head? I's' barbed bas note	535 650 635	114" RING GROOVED NAIL
PLOORING	Temperad Presdwood @	N°	6"	3-	11's" coated coung rails	635	114" COUNTERSUNK NAIL
PANEL	Tempered Presdwood	N°	120	3-	2"s" galvanized siding nails 2"s" galvanized box hails	200 200	114" BARBED BOX NAIL
SISIMO	Tempered Presdwood ina sheathing arecommended only far form bidgs, sheds, garages, etc.	N°	6"	3"	2" galvanized siding rails 2" galvanized bus nails	225 225	11/4" DRIVE SCREW
LAP	Tempared Presdwood 8 12 12 Siding eights 16	1- or 1-	16" elong bottom edge at stud lecations	3" vertically et all	Plain Lap. 21st galvanised using nots 21st galvanized box notis	140 140	annu —
SIBNING	24 and are		6 vertically over wedge strips at stud locations 16° a c.	gents over endge strips	Lap with shadow strip.  I galvanized siding nails.  I galvanized bax nails.	90 90	21/4" BOX NAIL
CONCRETE PORMS	Concrete Form Presdwood	N°	Ø" to 12"	4"	11x" coated casing nails	635	21/4" SIDING NAIL

Hammer, {
 Hammer,
 Saw and
 Paint...

We're the rugged Hardboard Twins!

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STAN stands for Weldwood Standard Hardboard.

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The only oil- and plastic-treated hardboard...water-resistant.

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We're light in color. Take paint easily. Cut with sharp, clean edges.

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To meet all your requirements: both Standard and Reztemp Grades of Weldwood Hardboard come in three popular thicknesses: ¼", 3/16", and ¼". In sizes: 4'x6', 4'x8', 4'x10', 4'x12' and 4'x16'. Panels up to 4'x12' are wrapped six to a package. Weldwood Reztemp Tile Board is available only in ¼" thickness and sizes 4'x4', 4'x8', 4'x12'.

Call your Weldwood salesman for Weldwood Hardboard or Tile Board today.

United States Plywood Corporation is the World's largest Plywood organization, producing a complete line of decorative hardwood plywood, fir plywood, Novoply's, Weldtex® and other specialty items—as well as the most complete line of wood-faced flush doors on the market.

\*Trade-mark registered Patented, other patents pending

#### WELDWOOD® Hardboard

Manufactured by Abitibi Power and Paper Company
Distributed Exclusively By

UNITED STATES PLYWOOD CORPORATION

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WORKMAN is shown applying adhesive to a panel of hardboard ready for installation in bathroom

Never nail center portion of panel first.

For cold moist bends, submerge portion to be bent in water not exceeding 100 degrees Fahrenheit for 40 minutes to several hours. If natural finish is to be retained, scrub screen surface with water, stack panels with moist cloths in contact with screen sides only, cover with tarpaulin and let standard bardboard stand for 24 hours; let tempered hardboard stand for 48 hours. Tile-face and leather-finish hardboard should stand for 72 hours. Then attach in usual manner.

For hot bends, panels are to be moistened in the same manner as described above and then bent over a pipe or roll heated to a constant temperature of 300 to 450 degrees Fahrenheit. Allowance should be made for a slight spring back. Panel moisture is converted to steam and when bend is completed panel will be dry.

#### Installing Hardboards

Hardboards may be applied over solid backing such as wood, gypsum lath, gypsum wallboard and plaster, or directly to studs or furring strips not more than 16 inches on center. Solid, continuous support must be maintained behind both horizontal and vertical joints. When applying directly over studs, hardboards should be at least 3ia-inch thick.

When hardboards are to be attached to solid surfaces the panels should first be cut to fit loosely in position on the area to be covered. Never fit panels tightly abutting each other. Then, by using a saw tooth trowel with notches of approximately "us-inch depth, spread waterproof adhesive over the entire back of the panel. Spread on all edges. Be careful not to get it on the surface which is to be exposed.

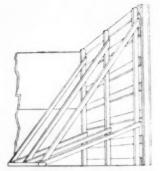
Place panel in position immediately after adhesive is applied. Press and tap it to get a firm contact over the entire area. It is then desirable to place braces or supports against the panel to hold it in place. (See diagram). Time required to set is usually overnight. Nails may be used in place of shoring if base surface permits firm anchorage.

#### Nailing

Nails or screws should be used if patiels are applied directly to studs. Nails should be long enough to penetrate the nailing base at least one inch. For interior work, space the nails six inches apart in the central areas of the panel and four inches apart approximately ¼-inch from the edges. For exterior application space the nails somewhat closer together. Always nail center of panel before the edges. On exterior work use coppercoated, galvanized, or cadmium-plated casing head nails.

#### Lap Siding

Hardboards may be applied as lap siding in strips 8, 12 or 16 inches wide, of either ½- or ½-inch thickness. Apply directly over sheathing and building paper, using a 2-inch lap. For applying on the exterior of a masonry structure, wood furring strips spaced 12 to 16 inches on center should be used. Shim furring strips to a true plane level. Fill the space between furring strips with cement plaster flush with surface of furring



A SUGGESTED method to brace interior hardboard panels until adhesive has set. Panels should be left braced from six hours to over-night

strips. A coat of asphalt mastic should then be applied to the reverse sides of panels before application. Then follow usual frame construction application directions.

The final surfaces of all hardboard applications, should have the rough edges or irregularities dressed down with No. 00 sandpaper. Surface finishes for preservative or decorative effects may be applied by the same application techniques as used on the average hardwood. Practically any type of finishing material may be used.

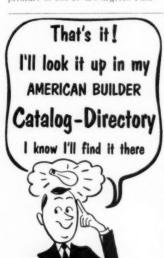
#### Concrete Form Hardboards

Specially tempered hardboards are for concrete form use and should be pre-expanded before being applied to the framework of a concrete form. Scrub water into the screen side and then stack screen side to screen side, covered, and let stand for 24 hours,

Panels are then applied to the form construction in the moist condition with the smooth side against the concrete and nailed securely. Screen side of panel may be used against the concrete if rubbing is required to produce a uniform surface color on concrete.

Necessary bevels can be formed of smooth, straight-grained wood and nailed through the fiber board and into the backing. Before first use or re-use the panel surface which bears against the concrete should be wiped with waste saturated with grease having a calcium soap or aluminum stearate base, or with waste dipped in paraffin base oil having a viscosity of not less than 250 seconds at 100 degrees Fahrenheit (Saybolt) and free from volatile constituents.

All other basic principles of proper concrete form fabrication should be followed.

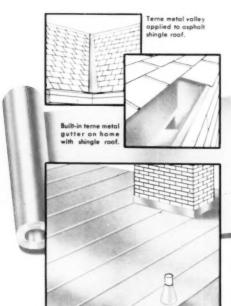


It's practically an encyclopedia of the building business with 5 Directory sections and 26 Peoduce Reference Sections all in one handy, easy-to-use volume. Get acquainted with your Catalog-Directory. It can make money for you,

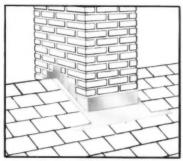
#### AMERICAN BUILDER

79 W. Monroe St.

Chicago 3, III.



Flat roof deck vertical seams are flat locked.



Terne step flashing applied to chimney on slate roof.



Porch roof—vertical and horizontal seams are flat locked.

#### **FOLLANSBEE STEEL CORPORATION**

PITTSBURGH 30, PA.



## TERNE METAL ROOFING

In 50-Foot Seamless Rolls

Terne, or more accurately terne plate, is the correct name for the material often called "roofer's tin." The old name persists, even though a plating of tin alone has not been used for roofing for more than a century.

Modern terne plate consists of copper-bearing steel strip, cold reduced to the proper thickness, heat treated to provide the best balance between malleability and toughness, and hot-dipped to give it a heavy coating of terne metal—an alloy of lead and tin. The lead provides protection against the weather, and the tin bonds the alloys to the steel base with greater adherence than is possible with lead alone.

Follansbee Steel Corporation has been making the highest quality Terne Metal for more than half a century. First, as "box ternes"—hand-dipped rectangular sheets 14" x 20" and 20" x 28"—which were seamed and soldered together when they were laid. Later, we offered "long roofing ternes"—sheets 8 feet long—then originated the exclusive Follansbee 50-foot seamless roll.

Its durability, malleability and toughness make terne the ideal weather-sealing material. It is used for valleys, gutters, flashings, etc., on built-up, composition, asphalt or asbestos shingle, slate and tile roofs. A wide range of widths—4", 6", 7", 8", 10", 12", 14", 20", 24" and 28"—is provided for any weathersealing need.

Weatherseal strips of Terne Metal may be painted immediately after installation. Terne is supplied unpainted, or painted one side, or painted two sides at the mill, as ordered. If received unpainted, the underside must be painted before the weatherseal is installed. If received painted one side, the weatherseal is installed painted side down, and the exposed side should be painted as soon as possible after installation. If installed painted two sides, the mill paint coat is adequate primer on the terne, and it is necessary to apply only the finish coat, or coats, as desired.

Weathersealing may be painted to match or harmonize with any roof, from slate to bright asphalt shingles, or tiles of any color. A list of 37 major paint manufacturers and their recommendations is included in the bulletin "How to Paint Follansbee Terne Metal Roofs." A good paint job is obtained when the suggestions included in this booklet are closely followed.

Follansbee Terne Metal is flexible in application—it may be used for any weathersealing application. It comes in a wide variety of widths; it has a low expansion and contraction rate; it has rugged strength—tensile strength is 45,000 lbs. per square inch; it resists tearing—the base metal is steel; it is fire-resistant—all metal, with nothing to burn; and it has a low maintenance cost—only an occasional painting. All these features add up to a completely satisfactory weathersealing material.

Box ternes are still available, but with comparatively fewer applications, especially since roofers and builders have come to realize that the idea that cross seams allow for expansion and contraction is erroneous—the metal can only expand and contract by breaking open the solder in the seams. With continuous rolls of Terne Metal, this factor is so negligible that it need not even be considered.

Pre-cut flashing shingles, 5" x 7", IC gage, painted two sides, can be supplied in packages of 100.



BASE METAL FOR TERNE: Two thicknesses of base metal are available—standard IC gage (approximately 0.0122" thick), and IX gage (approximately 0.0155" thick). IC gage is most widely used on all domestic and most industrial and commercial weathersealing applications. IX gage is made only on special order for extremely wide gutters and some industrial service, where extra heavy base metal is required.

COATING GRADES: Coating grades are expressed in terms of total weight of coating on a given area. This area, by old trade custom, is the total covered by a box—112 sheets—of 20" x 28" terne plates, and amounts to 436 square feet.

We recommend 40 lb. coating (available when not restricted by government order), because the extra thick coating provides an additional safety margin for satisfactory, trouble-free service, with only an occasional painting, for the life of the building. However, we also recommend 20 lb. coating, which is adequate for good service, when repainted as the rest of the structure is refinished. Some 8 lb. terne is available, but it is not recommended except for special or temporary applications. EXPANSION AND CONTRACTION: When weathersealing with Terne Metal, there is no need for expansion allowances or joints, for terne expands and contracts only 0.2195" per 30 lineal feet for a 100° F temperature change. Terne Metal is tough enough to absorb these slight changes, therefore the expansion and contraction features may be completely ignored.

#### TABLE: Expansion per 30 feet of Metals per 100 F. Temperature Rise

Terne Metal	. 1			ю	*	 	×	×	×	×	٠	8		*	×		,	0.2195	inch
Copper											×		 					0.3192	inch
Aluminum		*											 					0.4608	inch
Lead			0															0.5724	inch
Zinc																		0.6228	inch

#### TABLE: Tensile Strength of Metal Weathersealing Materials

Terne Metal45,000	lbs.	per	sq. inch	
Zinc-Across Grain	lbs.	per	sq. inch	
Copper32,000	lbs.	per	sq. inch	
Zinc-With Grain	lbs.	per	sq. inch	
Lead	lbs.	per	sq. inch	

### THESE BULLETINS WILL BE OF INTEREST TO YOU:

"How to Weatherseal with Follansbee Terne Metal"

"How to Install Follansbee Terne Metal Roofs"

"How to Paint Follansbee Terne Metal Roofs"





#### COMPLETE ROOFS OF TERNE

The properties of Follansbee Seamless Terne Metal roofing that make it desirable for Weathersealing also make it the best material for complete roofs. The architect and the man of the house like the good design features and the fine service it renders; the woman of the house likes its beauty of design and the color range it makes possible by the use of paint; and the builder, in addition to liking all these qualities, knows that he can build a house with a Terne Metal roof

incorporating lighter structural design, because he is free of concern for the weight of the roof.

A terne roof is easy to install, for there are no cross seams in Follansbee Seamless roofing to plague the roofer. It is easy to maintain, simply by painting the roof—to match or harmonize—each time the sides and trim of the house are painted.

FOLLANSBEE STEEL CORPORATION

PITTSBURGH 30, PA.



**R** OOFS must meet two major requirements . . . they must be in harmony with the architectural pattern of the house and must provide sufficient strength to resist winds, sustain snow loads, keep out heavy wind and rain.

Basic roof types commonly used are the gable, hip, hip and valley or intersecting gable, gambrel, and flat roof. The weight of the roof covering is supported by roof sheathing which provides a nailing surface for the roofing material, braces the rafters, and also helps to keep the interior of the building warm.

#### ROOF SHEATHING

Roof sheathing can consist of boards laid squarely across the rafters in varying widths with edges tightly butted or matched. Where rigid roof structure for good wind resistance is desired, diagonal treatment just as for wall sheathing results in greater strength.

Roof boards or slats under wood shingles should be not less than 3 inches wide by 34 inches thick. The placing of roof slats should begin at the eaves, spacing them the same distance on centers as shingles are exposed to the weather.

Where asphalt or asbestos roofing is used, the deck should be carefully matched or shiplapped from the eaves to the ridge. All boards should be nailed twice at every support with 8d nails. Joints must be over rafters in all cases except where end-matched sheathing is used.

#### Plywood Roof Sheathing

Plywood can be used for roof deck-

ing in thicknesses varying with roof loads and rafter spacing. FHA accepts 5/16-inch plywood roof sheathing over rafters 16 inches on center under both wood and asphalt shingles. However, unless ½-inch plywood is used, wood shingles must be applied with nailing strips. If ½-inch thickness is used, the rafters may be spaced 24 inches on center under certain conditions.

Correct nailing techniques must be followed for fastening the plywood and other components of the roof. For thickness of \(\tilde{\gamma}\), \(\tilde{\gamma}\) and \(\tilde{\gamma}\), \(\tilde{\gamma}\), \(\tilde{\gamma}\) and \(\tilde{\gamma}\), \(\tilde{\gamma}\) and \(\tilde{\gamma}\) and \(\tilde{\gamma}\) and \(\tilde{\gamma}\) and \(\tilde{\gamma}\) and \(\tilde{\gamma}\) other than \(\tilde{\gamma}\) inches apart edges and not more than 12 inches apart elsewhere.

Edges should be protected from the weather along cornices and rakes by a lumber strip, by flashing or by a strip of exterior waterproof plywood.

#### Insulating Sheathing

Some roof sheathing materials which also combine insulating qualities are available in panels up to 8 by 14 feet. These require fewer handlings and fewer nailings than with materials of smaller size. Asphalt or asbestos roof shingles can be applied directly to such sheathing by applying furring strips 12 inch on centers to the rafters and nailing the sheathing to the furring strips. When wood shingles are used, furring strips are applied to the sheathing and nailed into the rafters at whatever centers the shingle size demands. The resulting air space between the shingles and the sheathing further increases insulation value and helps prevent rotting of the shingles.





ROOF DECKING goes on faster when plywood sheets are used

#### ROOFING

Shingles made of wood or of a mixture of felt and asphalt covered with crushed slate, or of combinations of asbestos and cement are the most common type of roofing. It is always important that manufacturer's specifications be followed in installing any roofing.

#### Wood Shingles

Wood shingles may be nailed over 1 by 3-inch or 1 by 4-inch strips, spaced the same distance apart on centers as the shingles are exposed to the weather; or the shingles may be nailed on a tight deck of square-edge or matched boards. Joints between shingles in any one course should be at least 1½ inches from joints in the course next below so that driving rains will not work across underneath the shingles and penetrate the roof. Shingles in each course should be spaced not less than ½-inch apart.

The type of nail used with wood shingles is important because ordinary iron shingle nails will rust and loosen the shingle long before the shingle itself is in need of replacement. Therefore, hot-dipped, galvanized or copper or bronze nails

should be used. A round nail with blunted three-cornered point is ideally suited for putting on shingles as it is less likely to split the wood.

#### Asphalt Roofing

The importance of proper application of asphalt roofing is indicated by the fact that about 85 per cent of current roofing requirements is met by this type of material. When old roofing remains in place, removal of old wood shingles, old asphalt shingles, or old roll roofing generally is not necessary if: (1) the deck and framing are strong enough to support workers and new roofing, as well as snow and wind loads; (2) the deck is sound and will give good anchorage for nails.

When the building is situated in a high wind area, shingles at eaves and rakes should be cut back far enough to allow application of 1-inch wood strips four to six inches wide.

To prepare old asphalt shingles for new asphalt roofing, nail down or cut away loose, curled or lifted shingles; remove loose and protruding nails, and remove badly worn edging strips and replace with new ones.

To prepare old roll roofing, slit

buckled sections and nail the segments down smoothly, and remove loose and protruding nails. If some of the old roofing has been torn away, leaving parts of the deck exposed, examine these exposed areas for loose or pitchy knots and excessively resinous areas. Cover these defects with sheet metal.

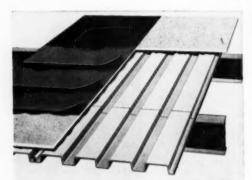
If old roofing has to be taken off, repair the framing where necessary to make it level and strong; remove all rotted or warped sheathing (delaminated units in the case of plywood) and replace it with new material, and pull out all protruding nails and re-nail the sheathing firmly,

If the old deck is a slotted deck, fill in all spaces between boards with securely nailed wood strips of the same thickness as the original boards; or move the existing boards together and then sheath the remainder of the deck as if a new deck were being built. Patch defects with sheet metal.

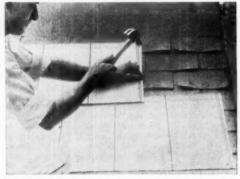
The last deck preparation detail is to sweep the surface thoroughly.

#### Metal Drip Edge and Eaves Flashing Strip

Before actually laying asphalt shingles of any type, a metal drip (Continued on page 240)



THE SUCCESSIVE LAYERS of tar or pitch insulation and roofing paper are clearly illustrated in this built-up roof on metal deck



ALUMINUM ROOFING SHINGLES are here shown being applied as replacement directly over old roofing material

These are the features that make

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Specialists in Asbestos-Cement **Building Products for Over 25 Years**  Fig. 1—Wood deck for asphalt roofing. Plywood decks should be at least ½-inch thick and of either 3-ply or 5-ply plywood. Maximum center spacing between supporting members should be 24 inches. After the deck is completed it should be protected by an underlayment of asphalt saturated felt not heavier than 15 pounds to the square

(Continued from page 238)

edge and an eaves flashing strip should be applied.

A metal drip edge (see Figs. 2 and 3) is a strip of corrosion-resistant 26-gauge sheet metal laid along the caves and the rakes. Galvanized steel, painted on both sides, is customarily

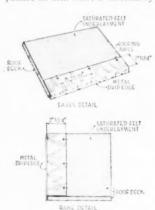


Fig. 2-Metal drip edge

used. Secure the strip with roofing nails spaced 8 to 10 inches apart along the inner edge of the strip. Bend the strip down along rake and eaves lines. The metal should extend two to four inches back from the edge of the deck, Prefabricated metal drip edges made especially for the purpose can be used.

The eaves flashing strip (see Fig. 3) is made of 90-pound mineral-surfaced

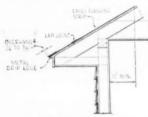
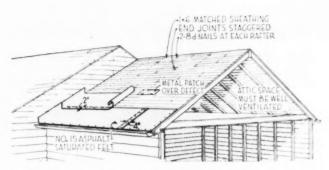


Fig. 3—Eaves flashing strip



or 65-pound smooth roll asphalt roofing. It overhangs the lower edge of the drip edge from ½- to ½-inch and extends up the roof to a line at least 12 inches inside the inside wall line of the building; the flashing strip should never be narrower than 36 inches.

#### Asphalt Strip Shingles

On top of the eaves flashing strip and flush with its lower edge, a starter course is laid with shingle tabs facing up the roof. About three inches is cut off the end of the first strip so that cutouts in the starter course will be covered by the first regular course. With hex strips, the first strip is not cut.

Application of three-tab square butt strips is shown in Fig. 4. Fig. 5 shows two-tab hex strips, and Fig. 6 shows three-tab hex strips.

The manufacturer's instructions should be followed for nailing, Galvanized roofing nails with heads at least ¾-inch in diameter and shanks long enough to penetrate to, but not through the bottom of the roof deck should be used.

#### Individual Asphalt Shingles

Application of giant individual shingles also calls for metal drip edges and eaves flashing strips, and (Continued on page 242)

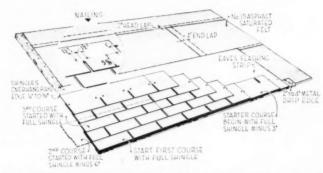


Fig. 4—Three-tab, square butt, asphalt strip shingles, with cutouts centered over tabs of shingles in preceding courses

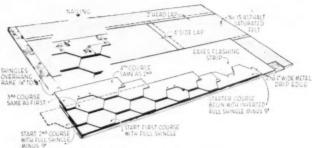


Fig. 5-Two-tab, hex strip shingles

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#### ROOFING - continued from page 240,

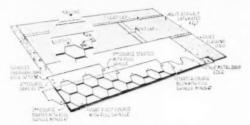


Fig. 6-Three-tab, hex strip shingles

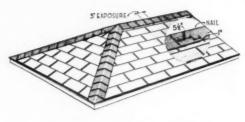


Fig. 7-Hip and ridge shingling for asphalt shingles

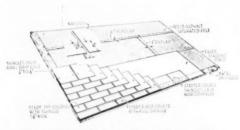


Fig. 8-Giant individual shingles. American method

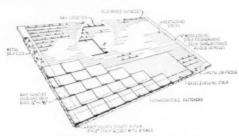


Fig. 9-Giant individual shingles, Dutch lap method

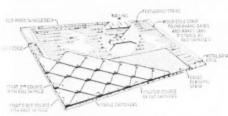


Fig. 10-Individual hex shingles, staple-down type



Fig. 11—Individual hex shingles, locking tab type

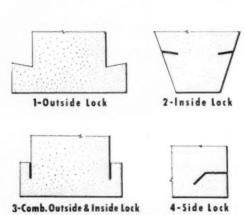


Fig. 12—Locking devices, interlocking asphalt shingles

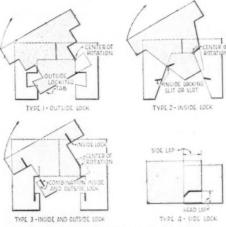


Fig. 13—Locking methods, interlocking asphalt shingles

is shown in Figs. 8 and 9. Over old asphalt roofing, nails should be 1½ inches long. Over old wood shingles, they should be 1¾ inches long.

Each shingle in the Dutch lap method is secured with two nails and one fastener. When application is from left to right, there is one nail in the upper left corner and one in the lower right corner. The lower left corner is secured with a galvanized wire staple or copper clip. This corner should not be nailed down.

#### Locked-Down Individual Shingles

Individual hex shingles are of two types—those that fasten with staples at the bottom corners, and those with locking tabs. Figs. 10 and 11 show application of these two types. Application can start at either side of the roof or at the center. If it is desired that both rakes present the same appearance, the center-starting method must be followed.

#### Interlocking Shingles

Interlocking shingles can be classified in four groups according to the locking method used (Fig. 12). Except for the Dutch lap type (No. 4 in Fig. 12), they can be laid from left to right, right to left, or each way from the center. Fig. 13 shows how the locking devices of the four categories of interlocking shingles work.

In applying types 1, 2, and 3 in the center-starting method, a center chalk line should be placed on the deck halfway between the rakes. The first course starts with a shingle centered on this line, and application proceeds in both directions to the rakes; end units are trimmed flush with rake edges. Otherwise, instructions for cutting and placing shingles are similar to those for end-starting application.

#### Asphalt Roll Roofing Application

It is preferable not to apply roll roofing at a temperature below 45 degrees Fahrenheit. When it is necessary to handle roofing at a temperature below this, the roofing should be warmed before it is unrolled. Roofing should be cut into 12- to 18-foot lengths, which should then be spread on a smooth surface until they flatten.

Either lap cement or special quick-setting cement, as recommended by the manufacturer, should be used. Cement should be kept in a warm place before using. If cement must be warmed quickly, place the unopened container in hot water. Never heat any kind of asphalt cement directly over fire.

Nails for roll rooting applied directly to a wood deck should be galvanized rooting nails with heads at least 3%inch in diameter and shanks 7%-inch or 1-inch long. Over old rooting, use nails long enough to penetrate the worn material and to go into the sheathing at least 34-inch.

The exposed nail and concealed nail methods are shown in Figs. 14, 15, and 16.

#### Nineteen-Inch Selvage, Double Coverage Roll Roofing

For this type, some manufacturers direct that cold asphalt adhesives be used and others specify hot asphalt. It is important to follow the manufacturer's directions exactly. Fig. 7 shows application parallel to eaves. Application parallel to rakes is generally similar to application parallel to the eaves. The starter strip is laid along the rake instead of the eaves. For hips and ridges (Fig. 18) 12-inch-wide shingles are cut from the roll and are bent lengthwise through their centers. Beginning at the lower end of a hip or at either end of a ridge, each unit is lapped 19 inches over the previous one.

(Continued on page 248)

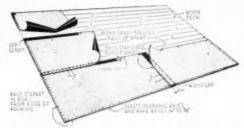


Fig. 14—Asphalt roll roofing, exposed nail method, parallel to saves



Fig. 15—Asphalt roll roofing, concealed nail method, parallel in eaves

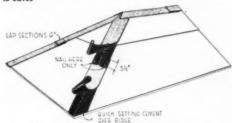


Fig. 16—Hip and ridge roofing, concealed nail roll roofing

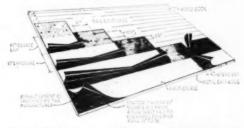


Fig. 17—18-inch selvage, double coverage asphalt roll rooting, parallel to eaves

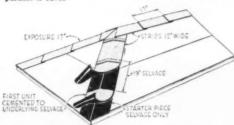


Fig. 18—Hip and ridge rooting, 19-inch selvage, double coverage roll rooting

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IT'S DOUBLE COVERAGE!
IT'S INTERLOCKING!

NO BETTER SHINGLE VALUE ON THE MARKET TODAY! TEX-LOK shingles stay put! Concealed nailing at four points plus interlocking keeps 'em down-come high winds and heavy weather. They're heavy duty and double coverage - providing more than two layers of asphalt shingles over the entire roof area. Fire-resistant, of course - and mighty attractive in either plain or textured surface and beautiful colors. And - TEX-LOK shingles carry a name that millions know and trust - Texaco.



TEX-LOK shingles are available in the areas currently served from roofing plants located at Lockport, Illinois; Port Neches, Texas and Port Wentworth, Georgia.

#### In the Northeast, it's TEX-LATCH

Tex-Latch is similar to Tex-Lok except in method of locking tabs. Tex-Latch shingles are available from the Edge Moor, Delaware roofing plant.



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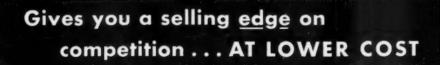
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\*Note these deep, beautiful striations, reproduced in actual size. Besides the gray siding shown here, STBL-Coton is presently available in lustrons brown and green.

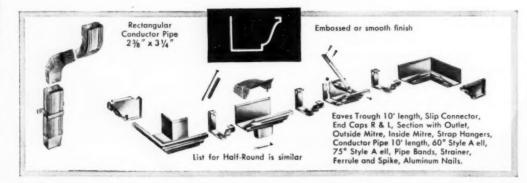




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APRIL 1952

STRENGTH AND RIGIDITY OF FRAME WALLS (From U.S. Forest Products Laboratory Tests, Wall with Openings)								
Sheathing Material	Relative Rigidity	Relative Strength						
118' DIAGONAL SHEATHING	1.0	1.3						
29/32" FIBERBOARD (Ad nails spaced 3" at all vertical edges 515" to 5" observices)	1.6	2.1						
HORIZONTAL (tell sheathings left let in braces. SHEATHING 8d rule. 2 per stud crossing t	1.5	2.2						
1/4" PLYWOOD (6d nails spaced 5" at edges, 10" elsewhere 3	2.0	2.8						
1/4" PLYWOOD GLUED TO FRAME	3.7	4.0						

COMPARISON of strength and rigidity of various sheathing materials

(Continued from page 243)

#### Asbestos-Cement Shingles

An outstanding feature of the modern asbestos-cement shingles is the interlocking design which permits firm anchorage with concealed nailing, each shingle being locked fast to the adjacent shingle. These shingles come in strips, are self-aligning and self-spacing; they are easy to apply and since each strip covers a large area, they speed application. Accessories such as eave starters, hip and ridge shingles and ridge rolls which are purchased separately, are available for all types of asbestos-cement shingle roofs.

Installation should be made in dry weather and care should be taken not to allow roof decks to warp because a clean, level roof deck is a prerequisite to maximum serviceability of these shingles. The minimum roof pitch usually specified is five inches per foot. Roof boards are covered with one layer of asphalt-saturated felt (not less than 15 pounds weight), with a 2-inch horizontal lap, a 6-inch end lap and a 12-inch lap at hips and ridges.

Application of a wood cant strip along the eaves, flush with the lower edge, gives a proper pitch to the shingles. Starter courses are placed under the felt; the first course is laid on the felt.

#### Flashings, Roof Valley

In localities subject to extreme

OYPSUM SHEATHING

WOOD SIDING
CONSTRUCTION

GYPSUM SHEATHING

GYPSUM
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SIDING OR SHINGLE LOWS SHEATHING

SIDING OR SHINGLE LOWS SHEATHING
CONSTRUCTION

HOW SIDING, brick veneer, asbestos-cement and stucco are applied to gypsum sheathing

winter weather, eave flashing is recommended. This should extend back at least 12 inches up under the roof beyond the inside wall surface and downward to the edge of the deck.

Nail holes are punched in the shingles at the factory. Special galvanized needlepoint nails 1½ inches long are used. Shingles can be scored and broken or cut with a cross-cut saw or coarse hack saw. Most dealers' offices will have portable shingle cutters for the use of customers.

It is important that tight nailing (which may cause cracks or cocking) and loose nailing (which results in rattling) both be avoided. To allow for thermal dimensional changes, shingles should be spaced not less than 1/16-inch apart at end joints.

Valleys, flashings, hips and ridges must be pointed up with plastic cement. Valleys, gutters and crickets can be leveled out with lath and roof cement to eliminate sharp corners and to make sure that a smooth, even base is provided for laying felt. Continuous felt strips should be used wherever possible, laid so that the water runs over laps, and never against exposed edges. The use of copper or other non-corrosive metal for the lining of valleys and for flashing is recommended.

The use of specially made hip and ridge shingles, cut to a taper or flair, saves much time. To provide a nailing base, it is necessary to nail a furring strip along each side of hips and ridges, butting the strips at the apex of the ridge.

#### Asbestos-Cement Corrugated Sheets

This material is incombustible, noncorrosive, weatherproof, and attractive; it is most useful for roofing farm buildings, garages and hangars, and light industrial buildings. It is especially economical for industrial buildings because it contains nothing that can rust or rot and its manufacturers claim that it gives permanent service without maintenance since it requires no paint or protective coating of any kind. Therefore all maintenance costs are eliminated and the first cost is the last cost.

The material is drilled with twist drills and fastened with screws or bolts, and can be sawed either with a hand saw or a portable power saw having an abrasive wheel.

Corrugated sheets are 42 inches wide and come in lengths ranging from 3 to 12 feet long, in 6-inch multiples, and have an average thickness of 36-inch. Some manufacturers make an over-all depth of 1½ inches and 4.2 pitch (center to center), with

(Continued on page 254)

## American Colonial

The most beautiful popular-priced

<u>Asbestos Roof</u> ever developed by Johns-Manville



In pleasing colors...with rich texture...

J-M Asbestos Shingles are fireproof, rotproof and weatherproof

American Colonials are rigid shingles made of asbestos and cement—two practically indestructible minerals. They have the same sturdy qualities that have proved themselves over the past 40 years in all J-M Asbestos Shingles, but in addition they have a new styling, new striking beauty of design and a new note of architectural simplicity and distinction.

Johns-Manville developed the American Colonial Shingle so that the beauty, permanence and fireproof qualities of an asbestos shingle roof could be enjoyed by the owner of even a modestly priced home. They are economical in cost, economical to apply.



Each shingle is designed as a rigid asbestos-cement strip covers as much area as 5 ordinary shingles.



The shingles are selfaligning. This speeds application. Larger size means fewer pieces to



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Tite-On Shingles . . . the ingenious interlocking shingles that provide real wind insurance. They're locked together and held in place by four concealed nails. Fire-resistant, easy to apply.



Thick Butts...extra thick, extra rugged where protection counts. In rich colors and blends ... smooth or textured. Thick Butts are built on heavy felt, saturated with heavy-duty asphalt.



Gold Method Built-Up Roofs... the perfect answer for the small roof job too flat in slope for shingles or roll roofing. Simple, conomical to apply without expensive melting kettles.



Vitramic Asbestos Siding...the permanent beauty treatment for old homes or new. Vitramic's hard, ceramic-like surface stays cleaner, brighter, lastingly beautiful. White, Cream, or Gray.



Mount Vernon Asbestos Roof Shingles...offer lifetime beauty, fireproof protection and coroomy. Staggered butt lines produce deep, irregular shadows. Weather-aged cypress texture.

## Beauty, Quality, Economy

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Color-Grained Siding... Ruberoid's new decorator-designed asbestos siding, which is creating a sensation in the siding market. It's an unprecedented advance in sidewall beauty, accomplished through a unique process of blending color and texture.

ShadoWedge... Ruberoid's new beauty aid for builders, is a tapered asphalt undercoursing strip. It's a brand new product designed to add sales appeal to new homes or remodeling jobs. ShadoWedge creates deep shadow-lines... is fast and simple to apply... no sheathing or joint strips needed.

These are Ruberoid's most recent asphalt and asbestos product improvements that mean more color, beauty and better building at lower costs. See your Ruberoid dealer today.

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#### ASPHALT AND ASBESTOS BUILDING MATERIALS



Grained Siding.

Ruberoid Roll Roofing . . . the original and still the best after 60 years of proved performance. Smooth-surfaced, Mineral-surfaced and Dubl-Coverage, which offers virtually a built-up roof.



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Stonewall Board...the asbestoscement building board of 1,001 uses. Ideal for soffits, partitions, garages, closet linings, etc. Fireproof, rat-proof, rot-proof, rusged, yet easy to work,



HERE ARE A FEW OF THE MANY USES OF RUGGED, WATERPROOF

## SISALKRAFT PRODUCTS

SISAL ACMINICED PROTECTIVE PRIPERS

ASSURE LIFELONG PROTECTION AGAINST WATER, MOISTURE, WIND AND DUST



As Sheathing Paper



For Curing and Protecting Concrete



For Use Over Subfill under concrete slabs



Under All Finished Flooring



## THE BEST VALUE IN REFLECTIVE INSULATION AND VAPOR-BARRIER COMBINED



SISALATION for SIDEWALLS

Costs 50% less than "bulk" or "blanket" types of insulation. Bowed in between study, SISAL-LATION provides essential air spaces and two reflective surfaces to repel escape of radiant heat from inside the house in winter, and to repel entry of greatest percentage of summer's strong radiant sun-heat from outside. Also costs far less to apply!



## SISALATION plus SISALKRAFT for Insulated Dry Walls

The use of SISALATION and SISALKRAFT together, as shown above, assures economical, effective insulation, plus dry walls. This combination costs less for materials and application-costs than other insulating methods that do not provide dry walls. Keeps homes warmer in winter, cooler in summer, moisture-vapor protected all year 'round, Application details and free samples on request.



## SISALATION for CEILINGS

Applied underneath or between ceiling joists, SISALATION provides both insulation and vaporbarrier protection... at a single, low application-cost. Applied under roof rafters, SISALATION keeps attics brighter, more attractive, cleaner, remarkably cooler in summer and noticeably warmer in winter. For old or new homes.

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SISALKRAFT STOCK SIZES: 36"-225 sq. ft; 36"-500 sq. ft; 48"-666 sq. ft; 60"-1000 sq. ft; 60"-1500 sq. ft; 72"-1000 sq. ft; 72"-1800 sq. ft; 86"-1000 sq. ft; 86"-1200 sq. ft; 96"-2400 sq. ft; 96"-2400 sq. ft.

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BUILD Lasting Quality IN HOMES ... At Low Cost . . . WITH SISALKRAFT PRODUCTS



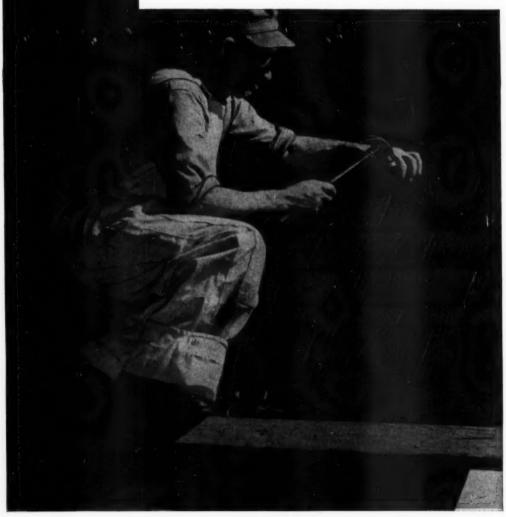
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To do better remodeling and modernizing work at less cost, use SISALKRAFT and SISALATION, Protective covers of SISAL-KRAFT over construction materials will save you money. Before re-surfacing floors, it pays to lay SISALKRAFT over rough flooring. During construction or decorating, use SISALKRAFT as protective covers or drop-cloths. Unfinished attics and other rooms, lined with SISALATION, become bright, pleasing in appearance, most livable, Economical, easy to apply, top quality... ideal for remodeling.

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"Reg. U. S. Pat. Off.

## (Continued from page 248)

10 corrugations to the sheet, and others make a 25g-inch pitch with 16 corrugations to the sheet. Special fasteners are supplied for uses over various types of frameworks. Detailed information on installation is readily available from the manufacturers.

The minimum pitch advised for corrugated ashestos-cement roofs is three inches to the foot, and an overlang at the caves of six to nine inches from the outside of the lower roof purlin is recommended. At the gables sheets should not overhang ends of purlins more than two corrugations.

The weight of the sheets in place is four to five pounds per square foot.

## Steel Roll Roofing

Made of prime steel strip uniformly coated with a mixture of lead and tin. seamless steel roofing is available in rolls of 50-foot and 100-foot lengths in widths of 14, 20, 24 and 28 inches. It offers maximum strength without excessive weight, fire-retarding properties, and protection against weather. Manufacturers say that on large roof areas, use of this steel roofing results in substantial savings because of ease of installation and minimum waste. The rolls can be cut to any desired length; edges are uniformly straight and there are no buckles; field trimming is unnecessary to correct for camber.

This type of roofing should be laid on selected waterproof paper (tar paper and other types containing acids should not be used). Nails should not be driven through the strips. All solder used should be strictly half-and-half. Rosin only should be used as a flux for soldering and all rosin must be removed from seams before painting. No acid flux should be used. Roofers must wear rubber shoes and all unnecessary walking over the roof or using it for storage of other material should be climinated.

## Copper Roofing

This is one of the oldest types of roofing and needs no introduction. The required thickness of copper roofing will depend upon the type of construction being covered, and the location of the building. For sloping roofs of residences, 10-oz. copper has been found satisfactory; heavy industrial building construction may require weights up to 32 oz. per square foot although 16-oz. copper is considered standard for general sheet metal work in building construction. Lead-coated copper can also be obtained.

Before applying copper roofing, all

roof surfaces should be covered with roofing felt over which rosin-sized paper is laid.

## Built-Up Roofing

The built-up roof is a seamless piece of flexible waterproofed material, custom-built to fit the roof and to protect all the angles formed by the roof deck and any projecting surfaces. It can be applied either hot or cold and is fabricated from felt, pitch, asphalt and gravel. The so-called "tar roofing" refers to a roof applied with hot asphalt or pitch. Insulation is required because a major problem with built-up roofing is that of moisture at the underside due to condensation. It is also recommended that the insulation be protected by installing at least one ply of roofing felt under the insulation to act as a seal course.

There are distinct advantages in the use of pitch and slag or gravel surfacing. The oils in pitch are its weatherproofing elements and they are protected by the very dampness and moisture which rot ordinary materials. Pitch also has the ability to "heal" itself. Small cracks caused by heavy traffic or accidental damage to the roof will fuse together by themselves and disappear. This mobility also allows the membrane to conform to slight irregularities in the roof deck.

In the hot process of application, a first layer of sheathing paper or unsaturated felt is laid down, over which is laid tarred felt, then a coating of pitch is applied at between 350 and 375 degrees F. If asphalt with gravel surfacing is used, felt is first laid down, then mopped with asphalt in which additional felt is embedded; the surface is then coated with hot

asphalt into which gravel or slag is embedded.

In the cold process, felt is laid down on the roof deck according to manufacturer's specifications and asphalt is brushed or sprayed on the surface and in some cases must be allowed to set for a period of 24 hours.

## Slate and Tile Roofing

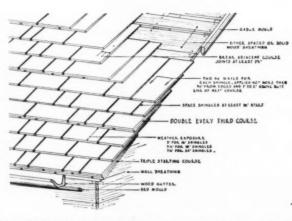
Slate, which is a hard, dense stone. is water-tight, weatherproof, fireproof and storm-proof; it rarely requires maintenance, is highly decorative in color tones, and can be applied directly over asphalt or wood shingles if necessary. On new roofing it is laid over asphalt-saturated felt and fastened with solid copper nails. Exposed nails are covered with elastic roofing cement colored to match the general color of the slate. Surface texture is smooth or rough as desired, and comes in average thicknesses of 1sinch to 3/8-inch, in lengths of 10 to 24 inches

Tile made from fine shale is also attractive, has the same qualities as slate, and is adaptable to various architectural designs. The shingles are produced in squares which permit quick and easy placement.

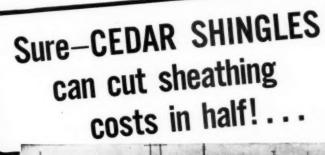
### Cedar Shakes

Long used for sidewalls, prestained red cedar shakes and shingles are suitable for roofs that have sufficient pitch to insure good drainage. They show excellent performance where exposure to weather is greatest. Light in weight and having a low rate of expansion and contraction with changes of moisture content, they offer sturdiness along with economy in installation. They may be

(Continued on page 256)



RED CEDAR SHINGLE FOUR-PLY ROOF, double courses producing deep shadow lines





You may be paying more than you think, for "inexpensive" roofing. Don't fail to figure the cost of sheathing when estimating roofing expense. Certigrade cedar shingles, because of their great strength and rigidity, require only half the sheathing that you must use on ordinary roofing.

Yes, spaced sheathing costs about half as much as solid sheathing, and it also costs much less to apply! You can count on saving about \$200 on sheathing and its application when you roof the typical 1952 house with cedar shingles. Normally, you will find that this saving more than makes up for the difference in cost of genuine cedar over substitute roofing.

Sharpen your pencil. Figure it out for yourself. Figure the comparative costs of cedar shingles with spaced sheathing as against substitute roofing with solid sheathing. We'll be glad to send you a handy estimating form which includes all of the cost factors in building a new roof.

## FAST-SELLING CEDAR ROOFS COST FAR LESS THAN YOU'D GUESS

## RED CEDAR SHINGLE BUREAU

5510 WHITE BUILDING SEATTLE 1, WASHINGTON METROPOLITAN BUILDING VANCOUVER, B. C., CANADA CERTIGRADE RED CEDAR SHINGLES



(Continued from page 254)

laid with standard exposure on roofs of not less than one-quarter pitch.

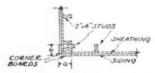
Hand-bewn shakes, rough textured on the surface side and smooth and flat on the underside, have a rugged, rustic appearance. The so-called regular stained shakes made by some manufacturers are smooth sawn on both sides. The hand-split type usually comes in 25- to 27-inch lengths, adequate to permit a safe lap on even the maximum exposure and butt thicknesses of 34-inch to 114 inches. They should be laid not less than 1/8inch apart and may be placed on the conventional 1 by 2-inch or 1 by 3inch shingle strip, or on solid sheathing covered with waterproof building paper. Hot-dipped zinc coated or copper shingle nails should be used; and when possible, all cutting and trimming should be done with a hatchet rather than a saw, it is advisable also to lay shingles just as they come from the bundles.

## SIDEWALL SHEATHING

Sometimes called sub-siding, sidewall sheathing is nailed directly on the frame work and forms a base upon which finish siding may be nailed. It stiffens and strengthens the building and prevents passage of cold or heat.

### Wood Sheathing

Sheathing ties the framework firmly together as a unit and imparts some insulation and weather-tightening qualities to the exterior walls. Therefore when boards are used, they must be of adequate quality, properly fitted and nailed. Unless end-matched



HOW TO CUT SIDING to come up against corner boards. The corner boards should be different in width by the thickness of one piece to make them appear the same on both faces. Sheathing beneath the siding is illustrated above

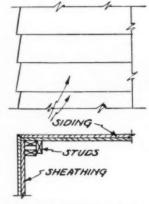
lumber is used, joints should come only on the studs and each board up to eight inches wide should be facenailed at each stud with two 8d nails. Wider boards should be fastened with three nails.

Experience and tests by the U. S. Forest Products Laboratory show that a wall with diagonal wood sheathing, two nails at each stud in each board, is four times as strong as a similar wall with horizontal

sheathing. Furthermore, diagonal sheathing on a two-story platform-framed structure ties all elements of the first and second floors together much more efficiently than the horizontal sheathing. It also provides a better surface for nailing the finish.

## Plywood Sheathing

Manufacturers claim that plywood imparts more than double the rigidity and strength of diagonal wood sheathing. They advise, however, that it is important that the correct grade and



SIDING OVER SHEATHING, mitered at corners is illustrated above

thickness be used for maximum economy and structural strength. The minimum thicknesses for wall sheathing are 5%-inch for 16-inch stud spacing and 3%-inch for 24-inch stud spacing. FHA minimum property requirements specify corner braces in house framing may be eliminated when 4 by 8-foot sheets of plywood are nailed with 6d nails, 6 inches on center on all edges and 12 inches on center at intermediate bearings.

When 5/16-inch plywood is applied as wall sheathing, wood shingles may be fastened directly with ring-barbed nails. Nailing strips must be used if barbed nails are not employed; likewise, ring-barbed nails must be used for applying asbestos-cement shingles or siding to 5/16-inch plywood-wall sheathing.

## Gypsum Sheathing

Gypsum sheathing is manufactured in panels 2 feet wide, 8 feet long and ½-inch thick. Each panel covers 16 square feet of side wall area; and a panel weight of less than 35 pounds permits easy handling by one man. It fits standard stud spacing of 16 or 24 inches which reduces waste to minimum. In fact, manufacturers say normal wastage is about 3 per cent.

Edges provide snug and continuous contact between adjoining sheets.

Except where local building regulations require it, building paper is not needed. Gypsum sheathing may be used with wood siding, masonry veneer, wood shingles, stucco and stone or brick veneer.

## Insulating Board Sheathing

This type of sheathing is a structural board which is usually heavier in weight than building board and is made of cane or wood fibres. All of the standard brands today are waterproofed either with an asphalt coating or with an integral asphalt treatment.

Two main size groups are made. One group comes in thicknesses of ½-inch and 25/32-inch, and dimensions of 4 by 8 feet or 4 by 12 feet. The other group comes also in ½-inch and 25/32-inch thicknesses and dimensions of 2 by 8 feet. One man can easily handle the panels without use of ladders or scaffolding; and some manufacturers also mark the board to show proper nail spacing and alignment.

Insulating board sheathing can be used as regular sheathing in frame construction with various exterior finishes such as wood siding, shingles, stucco or brick veneer. Building paper is generally specified only where insulating board is used under stucco or masonry veneer.

The 4-foot wide sheathing is applied vertically and nailed at the intermediate studs first with large headed roofing nails spaced six inches apart. Around the edges, nails are spaced three inches apart.

The 2 by 8-foot sheathing with interlocking horizontal joints is applied horizontally, nailed to the intermediate studs first with the same nails and same spacing used on the large sheets. This method of application of sheathing is about the same as with regular wood sheathing except that the units handled are much larger. Where rigid shingles are used as exterior finish, furring strips must be applied over the insulating board sheathing unless special patented self-clinching nails are used.

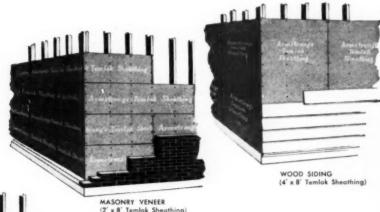
Ashestos siding shingles may be applied directly to this sheathing by using self-locking nails which the manufacturer can supply; clapboard exterior and ties for brick veneer are easily nailed through the sheathing and into the studding.

Some manufacturers claim 122 to 300 per cent more insulating value for this type as compared with ordinary wood sheathing. Furthermore, the 4-foot widths provide more than

(Continued on page 260)

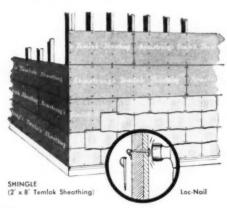
With any exterior ...

## TEMLOK MEANS STRONGER, LOWER COST CONSTRUCTION





STUCCO (4' x 8' Temlok Sheathing)



No matter how you finish your house on the outside, Armstrong's Temlok® Sheathing will make the structure stronger . . . tighter . . . and cut your costs in the bargain.

How Temlok adds strength. Temlok is made of tough pine fibers, mixed with asphalt and formed into strong boards (2'x8' and 4'x8' sizes). Because of these large sizes, Armstrong's Temlok can give the frame much greater rigidity than horizontal wood sheathing. Due to its great built-in strength, Temlok in the 4'x8'x25/32" size has been accepted by FHA field offices for use without corner bracing.

How Temlok cuts costs. When used without corner bracing, Armstrong's Temlok Sheathing will cut building costs an average of \$25-\$35 on a medium-size home. Because Temlok is so much easier to handle than lumber, many builders have found they save over 20% on labor time. There's practically no waste in cutting. You also save the cost of using building paper because it's not needed for most exteriors. You get Temlok Sheathing packaged for faster, easier handling.

For complete details on Armstrong's Temlok Sheathing, see your lumber dealer or write Armstrong Cork Company, 1604 Ross Street, Lancaster, Pennsylvania.

ARMSTRONG'S TEMLOK

# Many extra benefits



## Celotex National Advertising Puts the Spotlight on YOU

"See your builder!" All through 1952, as in years past, that's what Celotex will be telling prospective home buyers—in big, colorful, hard-selling ads in THE SATURDAY EVENING POST, BETTER HOMES & GARDENS, AMERICAN HOME, SMALL HOMES GUIDE.

These impressive, full-page Celotex ads are de-

signed to build business for you. Tie in with them by emphasizing to every prospect that your homes are built with genuine Celotex Products. You'll find this makes your selling job far easier. For over a quarter century of resultful national advertising has created unsurpassed public acceptance for the brand name Celotex!

## ...yet no extra cost!

# Celotex Insulating Sheathing does far more than ordinary sheathing yet costs no more, applied!

If you are using ordinary sheathing, you pay at least as much and USUALLY MORE than the cost of Celotex Insulating Sheathing, applied. Yet you get far less! For at no extra cost, Celotex Insulating Sheathing gives you all these extra advantages...

- INSULATES AND WEATHERPROOFS as it builds.
  All at one cost. No building paper needed.
  Saves labor, materials.
- 2 GREATER BRACING STRENGTH, about 30% greater than ordinary sheathing. No corner bracing needed to meet FHA requirements, with 4' wide, 25/2" thick Celotex Insulating Sheathing.
- GOES UP 30% FASTER. Easier to cut and fit. Up to 15% less waste. Siding or shingles can

easily, quickly be applied direct.

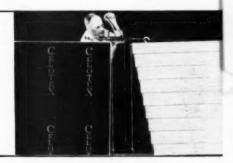
- 4 DOUBLE-WATERPROOFED. Stack it in the open, moisture won't hurt it. Won't warp or buckle. Lets you resume work sooner after rain, cutting costly delays.
- 5 IT'S THE ONLY SHEATHING made of tougher, stronger, long Louisiana cane fibres—and protected by the patented Ferox® Process from dry rot and termite attack.

So follow the lead of value-minded builders in every part of the country. Switch to Celotex Insulating Sheathing, best sheathing buy of them all. Build more comfortable, more durable, more salable homes . . . at lower cost. Free booklet gives complete information. Mail coupon today.

## Superior Bracing Strength Proved by "Tug of War" Test

On the left, Celotex Insulating Sheathing. On the right, ordinary sheathing. The test panels, nailed to  $2^{\prime\prime}$  x  $4^{\prime\prime}$  framing, were bolted to a common sill and connected by a turnbuckle.

As the turnbuckle was tightened, note how the Celotex Insulating Sheathing panel remained plumb—while the panel of ordinary sheathing was distorted. Visible proof of the superior bracing strength of Celotex Insulating Sheathing!



## Build better...Build with

Double-Waterproofed INSULATING SHEATHING

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Please send me a free copy of the Celotex booklet, "How You Can Build Better Homes at Lower Cost."

Nome

Address

Zone Stute

(Continued from page 256)

twice the bracing strength of wood sheathing horizontally applied.

### BUILDING PAPER

Building paper should be introduced between sub-siding and outside finish to prevent passage of air through the walls. It should be tough enough to withstand rough handling while putting it on, retain its strength after becoming wet, and prevent passage of moisture. It must lie smoothly and care must be taken to close all cracks around window and door openings.

A vapor barrier on the warm inside wall is considered essential when insulation is placed against sheathing. This is necessary to prevent moisture condensation within the wall. The vapor barrier is a paper which prevents vapor from entering the wall from the inside of the house. The building sheathing paper which insulates the outside wall should not only be wind and rainproof, but in contrast to the vapor barrier, should allow vapor to pass through it, and should be five times as vapor-permeable as the vapor barrier.

Four main types of building paper are: (1) papers impregnated with asphalt; (2) kraft paper impregnated with paraffin; (3) laminated building papers of two or more layers cemented together with asphalt; and (4) machine-finished papers.

## SIDING

## Plywood

Wherever plywood is intended for permanent outdoor exposure, only the exterior type with waterproof adhesive bond can be used. The architectural design of a structure will determine largely whether it is applied vertically or horizontally in the originally furnished sizes, or, if they are to be cut, what shape the pieces must be. Plywood may be applied with molded battens, V-grooves or flush joints. It makes excellent wide siding when applied in half-panel or third-panel widths. For economy of construction, 14-inch panels are used successfully. For construction of single-wall structures. 1/2-inch or thicker has been used satisfactorily.

Non-corrosive nails such as the common hot-dipped galvanized type should be used. Nailing should be with 6d common or 6d box nails for \$5-inch siding and 8d for thicker siding. When full-size 4 by 8-foot or longer panels are used, fastenings should be spaced not more than six inches on center at panel edges and 12 inches elsewhere.

There are several simple and easily

adapted methods for handling joints between the panels in using exterior plywood for siding. Some suggested treatments for both horizontal and vertical joints are shown in the section on "Plywoods and Hardboards."

All edges of plywood siding, whether covered, veed, exposed or butted, should be bedded in a thick lead-and-oil paste or other suitable compound, knifed on as the panels are applied. Following are the specifications which have been approved by FHA for filler or bedding: 100 pounds of paste white lead, 134 gallons of raw linseed oil and one pint of dryer. The dryer may be reduced to one-half pint if boiled linseed oil is used.

FHA minimum requirements specify that plywood used as siding must have minimum thickness of ½-inch with studs 16 inches on center. If sheathing is used, plywood siding may be ½-inch thick.

## Wood Siding

Wood siding is variously known as drop or rabbeted, rustic and beveled, or bungalow siding. But except where heating conditions are not a consideration, or in the extreme south, sheathing is a "must" to reinforce wood siding.

When drop or rabbeted siding is used, the lap of each board over the next below is determined by the depth of the rabbeting; with beveled siding the lap can be varied as the builder desires. It is always desirable to "lay out" the siding before it is applied, so that the bottom edge of some strake will occur at the bottom edges of the window sills and that of another strake will run neatly over the top on the frame or drip mold. This avoids the necessity of cutting or notching around openings.

For beveled siding a nail should be driven at every stud and located so that it will pass through both the outside piece and the top edge of the piece immediately under it; thus every piece will have two nails to secure it in place. Galvanized nails should be used to avoid rust. The nail is best driven flush and not set (unless also puttied) so that no place is left for water to lodge and work into the wood.

Wherever two pieces of siding meet or butt, the joints should be square. Corners can be finished as follows:

(1) Against corner boards: In selecting size of corner boards, one piece should be wider than the other so that when in place the corner board will have the same appearance from either side; and the size should provide nailing on the corner posts for the ends of the siding. Also, corner boards should have slightly

greater thickness than the ends of the siding. The minimum thickness for 6-inch siding is ¾-inch. For heavier sidings, heavier corner boards are required.

(2) Mitered corners: These are more troublesome than corner boards but more pleasing in appearance. Corner board methods are more airtight and water-tight and less likely to open up.

## Bevel Siding

The bevel siding so common today is almost like the early clapboards which were sawed with one edge thicker than the other so that they would fit more snugly against the framing. Bevel siding is customarily made in 4, 5, 6, 8, 10 and 12-inch widths and usually in-inch thick on the thin edge and 1/2-inch to 3/4-inch thick on the other edge. Bevel siding 8 inches and wider is often called "bungalow" or "wide Colonial" siding, and often has shiplapped or rabbeted joints so that the siding lies flat against the studding instead of touching it only near the joints as ordinary bevel siding does. This reduces the apparent thickness of siding by 1/4inch but permits use of extra nails and reduces the chance of warping. It is also economical, as rabbeted joints require less lumber than lap joints used with plain bevel siding. Rabbeted joints are not necessary for the 4-inch and 6-inch widths of bevel siding as these widths are usually 1/2-inch thick and rabbeting would make them too

"Rustic" and "drop" siding is usually 34-inch thick, 6 inches wide and is in a wide variety of patterns. Drop siding has tongued and grooved joints while rustic siding has shiplapped joints. Drop siding is heavier, has more structural strength and because of its design has tighter joints than bevel siding; therefore it is often used on garages and barns, where there is no sheathing as well as on homes.

### Cedar Shakes

Prestained cedar shakes have insulating qualities which make them resistant to heat transmission. They are commonly made in four basic grades—A. B. C and D—and are marked as to grade. For permanent and high grade construction, grades A and B are recommended. Edgegrain shingles are more resistant to weathering and are much less likely to cup or warp on the wall than shingles cut flatwise of the grain.

There are several types of cedar shakes for siding: processed shakes with parallel sides and square butts;

(Continued on page 262)

# how the NEW—Weatherbest OPTIONAL KOLOR PLAN

## Assures Construction Economy plus Greater Home Buyer Appeal

The Weatherbest Optional Kolor Plan for stained red cedar shake sidewalls is based on the use of Weatherbest Pryme-Shakes factory stained in one specially formulated prime color. Weatherbest Fynal-Kolor, available in twenty modern pastel and deep-tone shades, is supplied for a finish coat on the job. Pryme-Shakes and Fynal-Kolor are sold as a unit at no more than the cost of conventional stained shakes. But by use of a unique certificate ordering system, Fynal-Kolor can be requisitioned independently of the Pryme-Shakes.

## BUILDING WITH PRYME-SHAKES REDUCES LABOR TIME FOR SHAKE APPLICATION AND TRIM PAINTING ...ELIMINATES WASTE AND DELAYS

Pryme-Shakes need no special care or protection since the Fynal-Kolor coat will cover all constuction blemishes. Available in local stocks for immediate delivery. No waiting for special colors, no color match problems on the job. Shakes left from one house can be used on the next without regard to finish color.

## CONVENIENT FYNAL-KOLOR CERTIFICATE SYSTEM PERMITS CUSTOMER CHOICE OF TWENTY GORGEOUS FINISH COLORS

For each square of Pryme-Shakes purchased you receive a cerificate in lieu of Fynal-Kolor. Free color charts are furnished you for customer color selection. When Fynal-Kolor is wanted, you send in the necessary certificates and shipment is made at once direct to job site.

## SCIENTIFICALLY FORMULATED FYNAL-KOLOR IS EASY TO APPLY... ASSURES A UNIFORM AND PERFECT JOB

Made especially for use with Pryme-Shakes only, Final-Kolor may be brushed or sprayed just as it comes from the can. One coat produces an even color tone, eliminating color variation complaints and assuring complete customer satisfaction.



## SEE YOUR NEAREST WEATHERBEST SUPPLIER OR

## MAIL COUPON TODAY

WEATHERBEST ( North Tonawanda,	CORP. — Dept. Al New York	3-42
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Optional Roloi Fi	00.00	
NAME		

the simulated hand-split shake with face side grooved, "invisible" joints, and underside smooth sawn; and the hand-hewn type with face side smooth, visible joints, random thickness, and rugged rustic appearance. In the processed shakes, the machine squares up normally irregular shingle butts so that true horizontal course lines are assured and vertical edges of shakes are machined parallel.

Lengths of 16, 18, and 24 inches provide wide choice of weather exposures and permit variety in appearance. Usually they are designated as 4/2-inch or 5/2-inch depending on whether they measure four or five shingles to a 2-inch thickness.

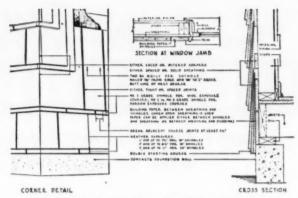
Installation can be made either over tight or spaced sheathing, although tight sheathing is more widely accepted. However, a very satisfactory and inexpensively constructed wall can be made from sheathing spaced apart on centers equal to the shingle exposure. Building paper should be used with such construction, either between the shingles and sheathing or between the shingles and sheathing or between the sheathing and studding.

Cedar siding shakes may be exposed to the weather more than shingles on the roof because the sun's heat does not reach them so directly and water runs off more quickly. They should be spaced not less than 14-inch apart; two or more nails, one near each edge, should be used in each shingle. Nails should be hotdipped, zinc-coated, or preferably of copper or aluminum, and should be driven so that they are completely covered by the next course above; however, nail heads should not be driven into the shingles. Shingle courses should be so laid that the shadow lines fall in with upper and lower lines of window openings.

A new application tool that eliminates picking up and nailing shakes one at a time enables two inexperienced men to apply an average of six squares a day. This is a 4-foot strip of light gauge steel with half-inch deep U-shaped channel top to hold the butt ends of the shakes or shingles. and is run end to end as far along the course as desired. Several of these 4-foot units are mounted on a 1 by 2inch or 1 by 3-inch strip 16 or 20 feet long. After insulating backing board or undercourse shingles have been installed, shakes are then inserted behind a cord or snap line and into the U-shaped channel, and the workman can go right down the line and nail them in place without stopping.

## Asbestos-Cement Siding Shingles

These shingles are an economy be-



DETAILS of red cedar shingle ribbon sidewall application

cause they require no maintenance, initial painting or other subsequent treatment for preservation, Manufacturers of some brands claim surface grime can be cleaned off by washing with soap and water. They are also fireproof and unusually weatherresistant. They are available in a variety of colors, surface textures and butt lines. They can be installed directly over wood sheathing or over gypsum or insulating boards with special fasteners. Sold in squares, they are generally packed in three bundles per square with about 57 pieces 12 by 24 inches in size to the square. Manufacturers provide backer strips for use behind vertical joints and corrosion-resistant face nails. Some asbestos-cement plants also make asbestos-cement clapboard.

In order to prevent staining, wood trim is given at least a prime coat before installation of siding; and all metal, particularly copper used for flashing, is initially painted with a protective coating. The siding is installed over a layer of waterproof far or waterproof backing board. Asphalt saturated felt is recommended as underlayment since others, such as tarsaturated felt, may cause staining. Joints in the siding are protected by using the felt backer strips.

Work is started by nailing a ½ by 1-inch cant strip to the bottom of the walls to be sided, to give the siding a slight cant and add to the finished appearance. Chalk line marks for the top of each course all around the building help assure accurate meeting and mitering of courses and avoid wedge-shaped courses at the eave lines. The first course, extending ½-inc. below the cant strip to form a drip edge, is started with a whole shingle. After backer strips are in place, the head nails are driven in, as are the specially-coated face nails. At

least one nail should penetrate each backer strip. A half-shingle is used for starting the second course.

To avoid smearing the face of the siding wherever siding butts against trim, masonry or other materials, asbestos caulking should be applied. All inside and outside corners are protected with vertical 12-inch strips of asphalt felt behind the siding. Special precaution should be taken with corners likely to be subjected to hard knocks by using corner boards and pre-finished metal corners; alternate shingle construction or mitered shingles are also used at corners.

(Continued on page 264)

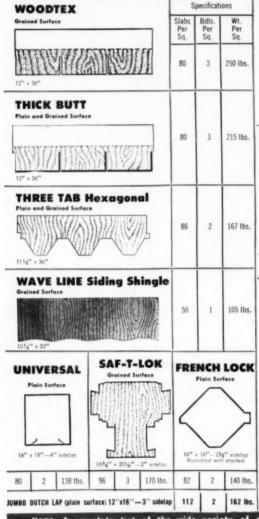




AN ECONOMICAL METHOD of applying double-coursed wood shingles to buildings with insulating board sheathing

## ASPHALT Roofings & Sidings

for every new construction and replacement need!



## **ROLL BRICK-TEX** Siding

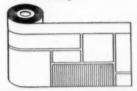


## Specifications

Strip	Size	Wt.	
Per	Per	Per	
Roll	Strip	Roll	
2	16" x 42"	105 fbs.	

Black Mortar Lines Matching Soldier Course and Corner Strips Available

## ROLL STONE DESIGN Siding



Specifications Strip Size Wt Per Per Roll Strip 105 lbs.

Black Mortar Lines Matching Corner Strips Available

Insulating Sidings available at York, Pa. and Chicago, III.

## MINERAL SURFACED ROLL ROOFINGS

Certain-teed 90 lb. Certain-teed 19 in. Selvage Edge Roofing Certain-teed Blockedge Grained Certain-teed Starter and Valley Strips

## SMOOTH SURFACE ROLL ROOFINGS

Certain-teed 55 lb., 65 lb. & Guard 45 lb. Black & White Cap Sheet Base Sheet

A Complete Line of

FELTS. BUILDING PAPERS, ROOF **COATINGS and CEMENTS** 

NOTE. A complete list of the wide variety of colors available will be sent at your request.



CERTAIN-TEED PRODUCTS CORPORATION

ARDMORE, PENNSYLVANIA

ASPHALT ROOFING . SHINGLES . SIDINGS GYPSUM PLASTER . LATH . WALLBOARD . ROOF DECKS FIBERBOARD ACOUSTICAL TILE INSULATION



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- \* New pastel colors!
- \* Fire-resistant, of course certified by Underwriters' Laboratories
- \* 215 lbs. of working weight protect every 100 square feet of roof.

For more information write Bird & Son, inc., Dept. AB-4, East Walpole, Mass.



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ASPHALT SHINGLES & INSULATING SIDINGS WATERPROOF PAPERS . ROLL ROOFINGS

East Walpole, Mass. . New York, N. Y. . Chicago, Ill. . Shreveport, La.



PHOTO ABOVE illustrates the approved method of applying asbestos-cement siding shingles. First, the sheathing or old siding is covered with a felt underlayment. Shingles are then aligned and nailed in position, using non-corrosive nails, with a felt backer strip at each joint. Strips lap lower courses. At least one nail penetrates each strip

(Continued from page 262)

Aluminum Siding

Clapboard siding made of a hard aluminum alloy is manufactured in individual courses, 7% inches and 9½ inches wide (67/8-in. or 81/2-in. weather-exposed), and in standard lengths of 10, 12, 14 and 16 feet,

(Continued on page 266)

## Covering Capacities of CERTIGRADE Shingles

Including the Number of Square Feet Covered by Four-Bundle Squares and Single Bundles for Exposures Given.

Exposure	Sixtee		Eighter Shin		Twenty-four-inch Shingles	
Inches	4-Bundle Square	One Bundle	4-Bundle   Square	One Bundle	4-Bundle Square	One
315	70	1714				
4	80	20	70	1716		,
416	90	2234	80	20		+11.5
5	100*	25	90	2216		
534	110	2714	100"	25		+
6	120	30	108	27	80	20
614	130	3215	117	29	90	2215
7	140	35	127	31	95	24
71/2	1150	3715	136	34	100*	25
8	160	40	145	36	106	261
814	170	421/2	1154	38	113	28
9	180	45	163	40	120	30
916	190	4714	172	43	127	3114
10	200	50	181	45	133	33
101/2	210	521/2	190	47	140	35
11	220	55	200	50	147	36 14
1114	230	5714	209	5.2	1153	38
12	1240	60	218	54	160	40
1259			227	57	166	425
13		128	236	59	172	43
1314			245	61	180	45
14	***	***	1254	6.3	186	465
1416					192	48
15	***	*+*	***	***	200	50
1514	***	***		***	206	\$13
16	T	***	***	***	1212	53
161/2		***			***	***
17		***			***	
18	1					***

Maximum exposure recommended for roofs.
 Maximum exposure recommended for single SMaximum exposure recommended for double statement of the statement of

New - a colored shingle that will appeal to both builders and owners!

"Century"
NU-GRAIN
asbestos-cement siding...

At last, for re-siding old homes and for new construction you can use a colored shingle that has the architectural appeal of the old-fashioned split wood shingle . . . but the wearing qualities of stone itself.

For the "Century" NU-GRAIN Asbestos Shingle duplicates exactly in colored slate granules—the coarse and fine score marks of split wood.

These granules are permanently imbedded under hydraulic pressure, to make shingles in three colors that will not fade . . . NU-GRAIN Green, NU-GRAIN Gray, and NU-GRAIN Brown. And fire can't burn . . . rain can't soak . . . snow can't rot . . . and termites hate "Century" Asbestos Shingles!

You'll find the texture markings strong and visible with a straight butt shadow line so deep, it seems etched . . . the kind of texture that speeds sales.

Whether you're siding one home or a thousand, "Century" NU-GRAIN Shingles give you a low initial cost and easy application that increases your profit. Ask your K&M Distributor for details . . . or write us direct.

"Century" No. 58 NU-GRAIN
Asbestos-Cement Siding Shingles,
in NU-GRAIN Green. Also
available in NU-GRAIN Gray, and
NU-GRAIN Brown. 57 shingles
per square, 1½" head fap.





America's first maker of Asbestos-Cement Shingles

KEASBEY & MATTISON

COMPANY . AMBLER . PENNSYLVANIA



(Continued from page 264)

Recommended features are: a curved or concave face which increases strength, eliminates highlights or wrinkles, and the upper edge may be trimmed to any width; spring-tensioned joint, the result of the concave face, assures weather-tight joint, increases rigidity. One square is sufficient to cover a surface of 100 square feet.

## Insulated Siding

Imitation brick and stone siding in appropriate colors, backed with insulating board which adds structural strength and heat-resistance to exterior walls, is recommended as an economical material. It is easy to install and according to manufacturers' claims no painting or repairs are required. The exposed surface is coated with asphalt, Common sizes are 43% inches by 143% inches, packed 12 pieces per carton and 2 cartons to a square. Harmonizing insulated siding corner pieces come 35% inches by 25% inches by 3334 inches, seven pieces per carton, 19,5 lineal feet per

For other types of exterior wall materials such as brick and stucco, see sections on "Structural Clay Products" and "Cement, Concrete, Mortar and Related Products."



Through frequent use, Bill has learned it saves him time and money. It's practically on encyclopedia of the building business—it gives you building information and buying information—easily and quickly, when you need it.

## AMERICAN BUILDER

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THE builder today has at his disposal kitchen and bathroom wall and utility surface materials ranging in composition from clay to laminated vinyl plastic. He may elect to use wood, linoleum, asphalt and rubber, plastic, metal, glass or ceramics. Functional qualities in relation to the job to be performed are of prime importance in governing the final selection.

Surface materials are produced by the manufacturer with four major factors in mind: (1) durability, (2) case of maintenance, (3) decorative qualities, and (4) easy application. A combination of several surface materials may often be used in the same installation with good results. Materials impervious to water are a necessity around tubs, showers and lavatories. Materials of a softer texture may be preferred for the rest of the wall surface.

Both beauty and practical usage must be considered when selecting materials for surfacing sink, counter and work table tops in the kitchen. The same considerations enter into the selection of materials for dressing table or vanity tops in the bathroom.

Each type of surface material offers specific properties which must be considered in relation to the requirements of the installation. Clay tile and certain other materials offer full waterproof, stain-proof and fireproof features. Each surface material may be one or all of the following: moisture-resistant, moisture-proof, waterresistant, waterproof, heat-resistant. fire-resistant, fireproof and stainresistant. For certain installations on horizontal surfaces the hardness feature of the material will be of prime concern. In other cases a stain-proof hardness and lasting finish will be the requirement. Or, the decorative qualities of design and color may be of major concern and in some cases will govern the final selection.

### CLAY TILE

Clay tile is made from clay and/or other ceramic materials formed to thickness and shape and baked to



produce a durable material. The two general types are "glazed" and "unglazed." Either may be used for wall finish but for most domestic installations the glazed finish is preferred. The glaze may either be clear or opaque. Almost any color or combination of colors is available, in a veited, mottled or rippled effect. Finish of the glaze may be "bright," "semi-matte," or "matte" "Bright" finish has a shiny, reficerive surface while the other two finishes do not clearly reflect an image, or may be entirely without sheen.

Some firms produce pictorial and design tiles. Also available are pictorial sets of tiles. When installed, the final result is a large wall design or mosaic picture.

Tile thicknesses, vary with the manufacturer but run approximately ½-, 5%-inch and thicker for normal wall application. Two basic grades of tile are produced: standard grade (blue label) and seconds (yellow label), "Seconds" have slight imperfections which in no way affect the wearing qualities.

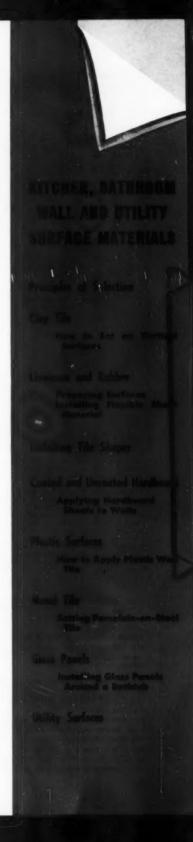
## LINOLEUM AND RUBBER

Linoleum and rubber types of wall coverings are available in rolls or cut tiles in varying sizes. Thicknesses, tile sizes and roll widths vary with the manufacturers.

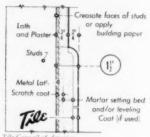
### Preparing Surfaces

Linoleum or rubber materials may be applied directly to any smooth surface, above grade, provided no seepage occurs on the base surface. This includes such surfaces as one- or two-coat plaster, hardboard, plywood, gypsum lath or dry concrete walls. It is well to note that if the surfaces to be covered are not smooth and level the glossy surface of the material will cause highlighting at random which will result in a warped and wavy appearance of the wall or surface. All unevenness is accentuated after the surface material has been applied.

When old walls are being covered, all previous wall covering must be removed. Wash grease and dirt from



# Creasote faces of studs or apply building paper Tipe Leveling Coat (if used) ond Mortar setting bed Scrotch coat Metal lath



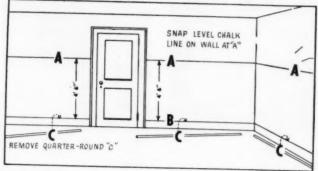
HOW CLAY TILE IS SET ON VERTICAL SURFACES. Dampness protection for wood members that are to receive metal lath and scratch work for tile is provided by building paper or creoste or asphalt paint. If the scratch coat is applied with reasonable care, the mortar setting bed will provide a suitable surface and the "leveling" or "plumb" coat may be omitted. The mortar setting bed is screeded to a properly trued-up plane to receive the tile. It is spread over areas no greater than will be covered with tile while the setting bed remains plastic. Either the floating or the buttering method may be used by the tile contractor in setting the tile. Vertical units must be main tained plumb, level and even. Finished surface must be brought to true and flat



TILES may have either square or cushion edges. The cushion edge has a slight curvature at the facial edge

surface with washing soda, rinse thoroughly with clear water and wipe dry. Cracks and holes should be filled with non-shrinking fill. Rough spots and trowel marks should be removed with coarse sandpaper. Bring exterior and interior corners to a true plumb and square if the surface is to be in tile shapes. When applying rolltype materials, the interior and ex-

## HOW TO INSTALL FLEXIBLE SHEET MATERIAL



Congoleum-Naira, Inc.

FIG. 1.—Strike a level chalk line "A" on the wall completely around the room. Desired height will depend on preference and width of material. Starting at doorway or other projection, measure length of wall area to be covered, then cut material accordingly, using linoleum knife. For ease of handling, cut material into pieces not over 6 feet in



FIG. 2—Spread linoleum adhesive on wall area to be covered so that no plaster shows through. Keep below chalk line. Spread just sufficient paste to secure each piece as it is applied. Place first piece of material into position with top edge even with chalk line "A", and butt or fit to door frame or projection. After piece is in place, rub the entire surface thoroughly with a damp cloth to anchor the material into the paste and to remove air blisters.



FIG. 3—Proceed in the same manner with each succeeding piece. Clean any smudges or excess paste from each piece immediately after it is installed. Wipe with a damp cloth



FIG. 4—If a cap strip is desired, paste the strip after the lower area of the wall has been finished. Apply to upper wall above finished portion. Baseboard may be applied at the same time



per wall, measure upper wall at intervals between top of wainscot and ceiling and cut material to these measurements. But tightly against lower wainscot. If pattern or tile surface material is being used, or if the design varies with lower portion of the wall, make sure mortar lines, or other pattern, line up properly. Wood or metal mouldings may be used on interior and exterior corners. Remember that interior and exterior receptacle-type mouldings must be installed before the surface material is applied

FIG. 5-In applying material to the up-

terior corners may be rounded to a 34-inch radius.

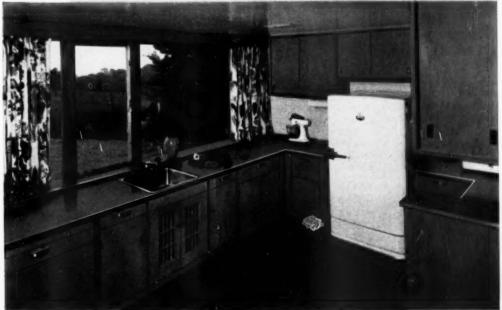
If gypsum wallboard is the base, the surface should be sealed with one coat of primer; around tubs two coats should be used. Only a non-metallic tape and cement flush-joint system should be used on the gypsum board. An opening of about ½-inch should be left between gypsum board

and recessed tubs to permit grouting with a water-resistant, non-shrinking plastic compound at the time the surface material is applied,

Enameled surfaces should be sanded to afford a satisfactory bond.

Figures 1-5 illustrate the procedure for installing linoleum and other flexible material on vertical surfaces. (Continued on page 272)

## Designed with a long view-inside and out



Albert Kennerly, Architect

The picture windows in this kitchen face on scenic beauty that extends for miles. The specifications, which read "Sinks and Counter Tops 1/16" Formica on water-proof plywood," provided the "long view" inside.

That qualifying phrase "or equal" is seldom associated with Beauty Bonded Formica. For beauty, for durability, for range of color and pattern selection, Formica is in a class alone.

If years and years of carefree use with no maintenance cost is the aim—the long view calls for genuine Formica.



For complete FORMICA information see Sweet's  $\frac{14A}{FO}$ 

## FORMICA

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In Canada Arnold Banfield & Co., Ltd., Oakville, Ontario

## WHEREVER THERE'S A TOP — THERE'S A USE FOR **GENERAL ELECTRIC TEXTOLITE\***

General Electric Textolite plastics surfacing comes in dozens of exclusive patterns and colors. Use it wherever a durable surface is needed - tables, counters, work surfaces of all kinds - in homes, stores, restaurants.

A variety of gay patterns and solid colors make General Electric Textolite as pretty as it is practical. Textolite's beauty lasts and lasts. It's scratch and heat resistant, withstands boiling water, scalding greases, even resists burning cigarettes. General Electric Textolite is stain resistant, sheds fruit juices, alcohol, ordinary household chemicals and acids without a trace. It's easy to keep Textolite tops clean. Just a swish with a damp cloth restores the original sparkle and luster.



HOMES

## WHERE FOOD AND DRINKS ARE SOLD

For COMMERCIAL INSTALLATIONS, G-E Textolite tops offer many advantages. Their colors blend beautifully with any decorative scheme. Customers like the atmosphere created by G-E Textolite surfacing. And hotel and restaurant managers appreciate the savings in maintenance costs that G-E Textolite tops make possible. For soda fountains, cocktail tables, restaurant counters, and dozens of other applications. G-E Textolite tops offer an unusual combination of utility and beauty. They "wear like iron; clean like glass."



**RESTAURANTS - STORES - BARS** 

## G-E TEXTOLITE READY-BONDED TO RODDISCRAFT PLYWOOD

For your added convenience Roddiscraft warehouses have engaged leading fabricators in each warehouse community to bond G-E Textolite to Roddiscraft Plywood. G-E Textolite professionally bonded to Roddiscraft Plywood can be cut and installed by carpenters with ordinary tools. No gluing or clamping necessary. Ask your Roddiscraft dealer about G-E Textolite Ready-Bonded Tops.

## AVAILABLE WHEN YOU WANT IT

A nation-wide warehouse service makes delivery of G-E Textolite fast and reliable. For complete information - patterns, prices and prompt service get in touch with your nearest Roddiscraft dealer,

> RODDIS PLYWOOD CORPORATION Marshfield, Wisto

Dealers exhibiting this display can show you a wide selection of G-E Textolite colors and patterns.

\*Reg. U. S. Pat. Off.



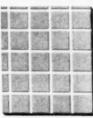
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. . . in Homes, Apartment Buildings, Institutions, Churches, Schools, Hotels, Theaters, Clubs, Bars, Stores, and other commercial installations.

Seven beautiful new Wood Panels plus a new Hi-Gloss finish on Marlite Plain-Colors, Horizontaline, and Tile Patterns make the Marlite line the most attractive and complete in the industry.

The exclusive high-heat-bake Marlite finish on every panel permanently fixes the "decorator-correct" colors and seals the surface against dirt, grease, moisture, ordinary acids and household stains.

Flexible, durable, waterproof Marlite, with a strong base of Masonite Duolux, is manufactured to the highest standards by the world's largest exclusive manufacturer of prefinished wallpanels.

### COLORS AND FINISHES

Jonquil Yellow Cream Mist Blue Corol Spring Green White Persian Red Pearl Gray Royal Blue Black Margen

PLAIN-COLORS

DELUXE FINISH—A special top-quality wallpanel with a hand-polished finish that adds an extra louch of beauty and sparkle to every installation.

HORIZONTALINE
Jonquil Yellow
Jonquil Yellow
Cream
Mist Blue
Coral
Spring Green
White
White

HI-GLOSS FINISH—A high-quality, low-cost wallpanel with a high lustre, mirror-like finish. In the same low price range as Marlite Velvetex.

PLAIN-COLORS
Ivory
Pastel Green
Desert Tan
Pastel Blue
Pastel Yellow
Swan White
Dove Gray

NORIZONT ALINE Ivory Pastel Green Desert Tan Pastel Blue Pastel Yellaw Swan White TILE-PATTERN
Ivory
Pastel Green
Desert Tan
Pastel Blue
Pastel Yellow
Swan White

## MARLITE SIZES AND PATTERNS

ALL PANELS 5/32" THICK

WOOD PANELS: Blond Mahogany, Striped Mahogany, Silver Walnut, Natural Walnut, Light Oak, Gray Prima Vera, Natural Prima Vera in rich patterns that faithfully reproduce the natural grains of selected woods. 48" x 72" and 48" x 96" with grain running in the direction of the second dimension.

MARBLE PATTERN: Rose De Brignoles, Jaune Benou, Black and Gold, Skyros and Verdi Antique in stately, authentic reproductions of rare, imported marble. 32" x 48" and 96" x 48" with grain running in the direction of the second dimension.

HORIZONTALINE: Two pairs of score lines, centered 16" apart, run with the length of the panel. Standard sizes—4' x 4', 4' x 5', 4' x 6', 4' x 3' and 4' x 12'.

PLAN: CLOR: A wide range of gay, cheerful colors for smart-looking interiors. Standard sizes—4' x 4', 4' x 5', 4' x 6', 4' x 8' and 4' x 12'.

THE PATIERN: New striping method adds to beauty of single seen a lines, spaced 4" apart, vertically and horizontally.

## QUICK FACTS ABOUT MARLITE

USES. Walls, ceilings, doors and cupboards in residential bathrooms, kitchens, utility and recreation rooms, dens and powder rooms. And every type of commercial interior, including counters, displays, display window backgrounds, elevator interiors and landing areas.

FOR NEW CONSTRUCTION OR REMODELING. Large, easy-to-handle panels cover old walls or new. Present surface need only be dry, and reasonably smooth and straight.

EASY TO WORK. Marlite is easy to cut and fit with ordinary carpenters' tools. Panels cover wide areas swiftly. During remodeling, busy areas remain in service without interruption.

EASY TO CLEAN AND MAINTAIN. Marlite's lustrous finish is as durable as that on the finest refrigerator or display case, requires only an occasional wiping with a damp cloth to restore all the sparkling beauty. Never requires refinishing, painting or redecorating. Commercial users have cut maintenance costs as much as 75%. During commercial renovating, there is never any paint odors . . . never a need to move out perishables. Business goes on uninterrupted.

WIDE RANGE OF COLORS AND PATTERNS. Among Marlite's 67 color and pattern combinations, builders find a distinctive Marlite color and pattern to suit any decorative theme... permitting modern, beautiful interiors that are both pleasing and practical at moderate cost.

## MOULDINGS FOR EVERY INTERIOR

Marsh Mouldings for any type wallboard interior bring enduring freshness to renovated rooms or brand-new installations. Aluminum Alloy and Presdwood shapes include matching mouldings for the striking new Marlite Wood Panels and Marble Patterns. In addition, Marsh Color-Matched Aluminum Mouldings match every Marlite panel color, featuring the genuine high-heat-bake Marlite finish.

## SPECIFICATION AND INSTALLATION DETAILS

See your local Marlite dealer, or write for free, illustrated folders giving complete information on Marlite, Marsh mouldings for every type installation, Marsh caulking, adhesive and polish. Insist on genuine Marlite, your guarantee of quality.

manufactured exclusively by



MARSH WALL PRODUCTS, INC., DEPT. 403, DOVER, OHIO

## INSTALLING TILE SHAPES

The same basic principles of tile application are used for asphalt, rubber, linoleum, plastic, metal or hardboard tiles. The composition of the tile will govern the specific adhesive compound to be used. Whether the tile is of the square edge or interlocking variety, the procedure is to start at the bottom and build upward on the wall. The fitting of one tile on another makes for self-alignment.

In preparing for the tile job, a line should be drawn at the lowest point of a tub in a bathroom, or of a sink in a kitchen, equivalent to the height of a full tile. Let the bottom tile end where it may, because a cove base will cover any unevenness between the bottom course and the floor.

Then apply mastic to an area on the wall about 4 by 5-feet in size. Using a notched trowel, first work mastic onto the wall in a vertical pattern. Then work the trowel diagonally over the vertical pattern. This helps to eliminate excess mastic and to make sure the mastic is thoroughly applied to the entire surface.

Start placing the first course of tiles either from right to left or from left to right, whichever is most convenient for the particular job. The important factor is to watch the leveling line. Make sure the tiles are not "floating" on too much mastic. Press each tile firmly against the wall.

When a plumbing fixture or an electric socket is encountered, the tile should be cut and smoothed with a file so that it can be custom-fit to the wall. A coping saw is easily used on hard composition tiles. Tin snips are used for metal tile cutting.

## COATED AND UNCOATED HARDBOARD

Wall-size panels with a hardboard base and factory finished by a coating, baked on, in a variety of colors, are applied in the same manner as unfinished hardboard. See the section on "Plywoods and Hardboards" for basic properties and details on how to handle, cut and fabricate hardboard panels.

Hardboard is also available uncoated for interior wall treatment. Two patterns are available—leather and tile-scored.

Factory-finished panels with hardboard base are usually \(\frac{h}{2}\)-inch thick. Allowances should be made in construction for this thickness. Standard sizes are usually 4-foot widths and lengths of 4, 6 and 8 feet. Smaller widths are available.

Figures 6-11 describe the procedure for applying hardboard sheets to walls.

## HOW TO APPLY HARDBOARD PANELS TO WALLS

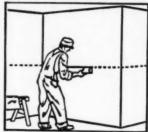


FIG. 6—First remove all high spots on the walls and build up low spots with patching plaster. All corners must be straight and level and all walls thoroughly dry. Wire brush papered or painted surfaces before cementing the panels to walls. Find the lowest point in the floor, allow for the base, and measure up from this to the height of the panel. Establish a level line at that point around the room

Barclay Manufacturing Co.

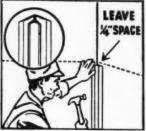


FIG. 7—Install vertical metal mouldings. Keep top end of moulding ¼-inch below level line and allow enough space at bottom of vertical moulding for base moulding to fit neatly below it. Mouldings are nearly always recommended and must be used wherever moisture is present



FIG. 8—Cut the hardboard with a fine tooth crosscut saw and sand edges before fitting and installing. Bevel back edge of board slightly for perfect fit. Scored edges of the board should always be kept to the top and right



FIG. 9—Cover the entire back of the board with cement, spreading it generously with a toothed trowel. Start applying the board in one corner at wainscot level and continue around the room to door opening. Then proceed from the same corner, in opposite direction, to the same door opening. Press the board firmly to the wall, using a few 1½-inch brads to hold it in place until the cement sets

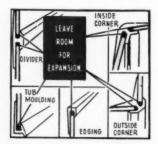


FIG. 10—Fit the panels loosely to allow for expansion. Sheets may be braced until they set



FIG. 11—After wainscot has been installed, apply cap and base mouldings by cementing, by nailing, or by both

## PLASTIC SURFACES

Plastic surface panels or tiles for wall treatment consist of laminated plastic material bonded to composition building boards and installed either directly to studding or solid walls in the same manner as plywood

(Continued on page 274)

Amazing new G-E Textolite\* MONOTOP plastics surfacing



Monotop surfacing is the biggest news in kitchen equipment in years! It's a streamlined, supersanitary beauty for the kitchen-from backsplash to curved front edge-in one molded piece of

beautiful colors in the "Cross Current" pattern (exclusive with General Electric), Monotop surfacing is ideal for bathroom vanities! For full information on Monotop, and the full line of G-E Textolite plastics surfacing, contact your fabricator or write to General Electric Company, Section O-3, Chemical Division, Pittsfield, Mass.

# Bee 17 E Per Off.

You can put your confidence in \_ GENERAL ELECTRIC

G-E Textolite plastics surfacing. Monotop is

easier to install, too, because there's no fitting of

pieces, no metal trim needed. Available in five





Your Name.....

(Continued from page 272)

panel installation. Standard thickness is \$\delta\_{\text{inch}}\$-inch. Panel sizes vary greatly with manufacturer, starting at about 24-inch widths. Solid walls should be prepared plane-level and panels may be bonded to walls by the use of adhesive cements. Receptable-type mouldings should be used on wall treatment installations of plastic furshed panels. Figures 12-18 describe the application of plastic wall tile.

## HOW TO INSTALL PLASTIC WALL TILE



Jones & Brown, Inc.

FIG. 12—First step is to measure off leveling point and to square and plumb all corners



FIG. 13—Mastic is applied to the wall first in a vertical and then in diagonal pattern



FIG. 14-Noting level line, first tile is



FIG. 15-First course sets line for rest of wall



FIG. 16—How the tile is set around



FIG. 17—When all of the tile is interlocked in position, feature strip is then applied



FIG. 18-Final step is the applying of cove base

### METAL TILE

Metal tiles come with a wide variety of baked enamel finishes and are of a flexible nature permitting the bending of tiles for interior or ex-(Continued on page 276)

AMERICAN BUILDER

THE HI-BAKED PLASTIC ENAMEL SURFACE WITH THE NEW CONTOUR BEVEL SCORE LINES



GREATEST EYE APPEAL LIFETIME

PERMANENCE

for GREATEST BUY APPEAL EASIEST CLEANABILITY



For full details, prices, discounts, write for our Catalog

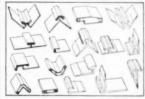
TYLAC . . . Exact 41/4" squares and 1/8" mortar joints give ceramic tile effect. Has 2 plain and 2 scored edges. No costly joint mouldings needed.

MURALAC . . . Groups of 3 parallel lines at 16" intervals add distinctive design to a plain mirrored surface. A beautiful modern home wall pattern.

STREAMLINE TYLAC . . . Rythmic beauty in parallel scorelines spaced 2 3/16" apart on the center. An interesting border or a modern all-over wall treatment.

TYLITE . . . Modern trend architecture demands this plain, lustrous surface, Popular for upper-wall areas above wainscot of other colors and designs.

## TYLAC METAL MOULDINGS

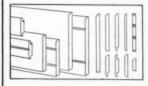


The 189 Line is Rolled Stainless, laminated steel beading over lead-coated, non-corrosive steel flange. Economical — no "weak-spots,"

The 280 Line is Snap-on Stainless steel of excellent quality and design at a high-ly economical cost.

The 398 Line is Extruded White Alloy. All come in 4'-5'-6'-8'-10'-12' lengths.

## TYLAC PRESDWOOD MOULDINGS



These Trim mouldings come in designs as illustrated. In 6' lengths only. Muralac Batten, in 4' length only.

## COMPLETE COLOR RANGE

- e Peach · Colonial Ivery
- · Ceramic Blue · Light Canary
- · Corsage Green · Horizon Blue • Sun Tan · Spray Green
  - · Hollywood Red · Coral Blush . Dove Gray
    - · Nubian Black
- . Devonshire Cream . Cinnamon Toast

## Here are a few of the Superior Features:

- \*TOUGHER
   \* HIGHER GLOSS
   \* BETTER COLOR RETENTION
   \*MORE RESILIENT
   \* MORE FLEXIBLE
   \* HIGHER ADHESION
   \* HIGHER RESISTANCE
   \* HIGHER RESISTANCE
   \*\*TO HOUSEHOLD ACIDS

Standard Stock Sixes: 48" x 48" - 48" x 60" - 48" x 72" - 48" x 96"

VLAC COMPANY MONTICELLO, ILLINOIS

PIONEERS IN THE PREFINISHED WALL PANEL INDUSTRY



## creates the kitchen every woman wants—helps you sell your houses faster

"Let's look at the kitchen." You've heard that phrase countless times from the woman considering making your house her home. And you'll get her name on the dotted line faster when you show her just what she wants . . . a pleasant, conveniently arranged kitchen featuring sparkling, easy-to-clean ARBORITE on counter-tops and walls.

## ARBORITE gives YOU trouble-free, labor-saving, on-the-job installation

You get ARBORITE in light, builder size panels 4' x 8' and 2'6" x 8' which are easily applied with little waste. Mastic adhesives and standard trim moldings hold it firmly in place. In fact, with ARBORITE you don't have any of the costly troublesome installation problems common to conventional pre-finished Plastic Surfacing Material. Your own carpenters can easily install it.

### Double-thick MELAMINE Surface adds years of wear

ARBORITE'S double-tbick melamine surface resists abrasive wear, boiling water, acids, alkalis, and moisture, the banging of pots and pans. It's cigarette-proof! The colors stay bright for years.

available in 30 distinctive colors and patterns

write for FREE four color folder on Arborite and its uses.



J. A. DAVIES & COMPANY

GRAND RAPIDS 3, MICHIGAN

SALES REPRESENTATIVE OF THE ARBORITE COMPANY, LIMITED . MONTREAL, CANADA

terior corners without damaging the finish. Solid colors, mottled and hammered effects, make available a wide variety of color combinations. Base material of tile may be stainless steel, steel or aluminum. Metal tile installation follows the method outlined for other tiles. They may be applied to almost any solid, clean, level surface.

A special wall tile of porcelain fused on 20-gauge steel is installed by cementing tiles to special foundation board ½-inch squares, which align the tiles perfectly and speed installation. Foundation board is cemented or nailed to the structural wall. Installation is described in Figs. 19-21.

## SETTING PORCELAIN-ON-STEEL WALL TILE



Armstrong Cork Co.

FIG. 19—Grout-adhesive is applied to the foundation board with a plasterer's trowel. This fills grooves and leaves a thin film on the raised surfaces



FIG. 20—Tiles are pressed into the



FIG. 21—Excess adhesive is removed and the joints are pointed with a finger. The tiles are then cleaned with a sponge dampened with water or mineral spirits

(Continued on page 278)

## THE BEAUTY IS Locked-in! THE TILE IS Locked-on! THE DIRT IS Locked-out!

FULL SIZE TILE

Size: 41/4" x 41/4" Pieces per Carton: 200 (25 sq. ft.) Weight per Carton:



PITTSBURGH PLASTIC WALL TILE

## 11 OUTSTANDING SALES FEATURES!

- 1. Winner of 1952 Fashion Academy Gold Medal!
- 1. The ONLY Patented "Interlocking" Plastic Tile!
- 3. Foolproof Self-alignment!
- 4. Lightweight for Quick, Easy Installation!
- 5. No Grouting . . . No Clean-up!
- 6. Beautiful Decorators' Colors!
- 7. Easy to Clean. Damp cloth keeps it sparkling!
- E. National Consumer Advertising!
- V. Competent Sales and Merchandising Assistance !
- 10. Backed by Good Housekeeping Guaranty Seal!
- 11. Accepted by U. S. Bureau of Standards !

### DECORATORS' COLORS

- · Black
- Western Spoe
- e White
- · Franch Blue

- · Pink

· Heather

• Turquoise

- · Blue/Green
- Dubonnet Marble
- · Primrose Yellow
- · Sprout Green
  - · Mist Grey Marble · Western Sage Marble
    - · Primrose Yellow Marble

. French Blue Marble

Sprout Green Marble

· Pink Marble

## WIDELY USED IN

KIRCHENS RESTAURANTS BATHROOMS

LAUNDRIES UTILITY ROOMS FOOD SHOPS SERVICE STATIONS

## Winner of the 1952 FASHION ACADEMY GOLD MEDAL AWARD







The first and only tile to receive the Fashier Academy Gold Medal Award for 1952

## HALF TILE



Size: 21/4"x 41/4" Pieces per Carton: 144 (48 lin. ft.) Weight per Carton: 3 lbs.

Size: 1/4" x 41/4" Pieces per Carton: 396 (132 lin. ft.) Weight per Carton:



FEATURE STRIP



3 lbs.

## INSIDE CORNER

Sixe: 41/2 ft. strip Pieces per Carton: 6 (27 lin. ft.) Weight per Carton: 2 lbs

## OUTSIDE CORNER

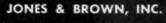
Sixe: 41/2 ft. strip Pieces per Carton: 6 (27 lin. ft.) Weight per Carton: 2 lbs.



## **COVE BASE**

Size: 31/2"x 41/4" Pieces per Carton: 72 (24 lin. ft.) Weight per Carton: 31/2 lbs.

For easy extra sales and plus profits . . . carry Pittsburgh INTERLOCK Plastic Wall Tile!

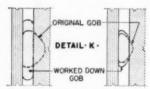


National Distributors 439 Sixth Ave. • Pittsburgh 19, Pa.

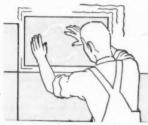
APRIL 1952

## **GLASS PANELS**

Recommended thicknesses of glass panels for bathroom and kitchen wall treatment are 11 and 76 inches. Weight is approximately 41/2 pounds per square foot of 11-inch thickness. Glass panels may be installed over any hard. firm wall surface which is of true , plane, plumb and straight. A bond coat should be painted on the wall surface to get good mastic adhesion, An allowance of 3%-inch should be allowed for setting behind the glass panel. Mastic is applied in gobs on



MASTIC IS APPLIED IN GOBS reverse side of the glass panel used as wall covering. Enough mastic should be used to insure that at least 50 per cent of the total area of the panel is bonded to the backing. Three-eighths of an inch should be allowed for setting behind the glass



Pittsburgh Plate Glass Co.

GLASS PLATES should be worked

the reverse side of the panel. Five gobs would be about right for an 8 by 12-inch plate. Sufficient mastic should be used to insure that at least 50 per cent of the total area of the glass panel is bonded to the backing.

Ready-built panels are available for installation in bathtub recesses and as kitchen stove backing. These panels are prefabricated and consist of glass panels mounted on plaster board. On certain edges, the plaster board extends beyond the edge of the panel and thus provides a flange which is nailed directly to the studding

Glass panels are available in a wide variety of colors for both wall and utility surface treatment. Whenever possible, manufacturers of glass panels prefer to handle the installation to insure complete and lasting faction.

## INSTALLING GLASS PANELS AROUND A BATHTUB



FIG. 22-After tub has been leveled, place roll of mastic around rim for waterproofing. Also, butter studs with mastic before setting glass panels



FIG. 24-Do the same with the end panels. Let plasterboard extend beyond tub to next stud. If wainscot is 48 inches high, follow the same sequence in setting around second course



FIG. 23-Set the plate at the back of the Then merely nail through plasterboard flanges and use the special clips supplied for this type of installation



FIG. 25-Clean glass and fill joints carefully with compound, This assures a waterproof installation

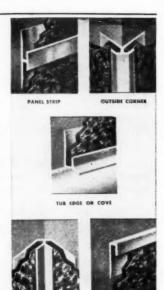
## UTILITY SURFACES

Clay tile, linoleum, hardboard, plastic, stainless steel, and glass form attractive and durable surface treatments for sink tops, table, cabinet and counter surfaces. The success of such installations depends almost entirely upon the quality of workman-



DECORATIVE MOULDING aluminum fits all sink shapes

ship in making the seams and edges tight and waterproof. Due to the fact that there are so many types of sink pans and metal or plastic trims available, each installation must be considered separately. It is advisable on many sink-top instellations to flash the surface materials to the wall to em a waterpe of the shback.



TYPES OF MOULDING and metal trim styles for use with wall coverings.

CAP STRIP

# Build "Buy Appeal" Into Any Home With



## THE PRE-FINISHED SURFACING MATERIAL THAT'S DESIGNED FOR LIFE-TIME BEAUTY

If there's anything that makes a woman fall in love with a new home, it's a modern kitchen—a NEVAMAR kitchen. One look at a sparkling NEVAMAR surface tells a story of beauty, color and ease of cleaning that no amount of sales talk can match. NEVAMAR means an easier selling job for you—and a satisfied buyer who will always sing the praises of a farsighted builder.

NEVAMAR is a hard, pre-finished surfacing material that has amazing resistance to wear—admits no dirt, grease or other foreign matter. It is designed for a lifetime of dependable service, keeps its beauty thru the years.

NEVAMAR is available now in a wide variety of colors and patterns, including beautiful wood grains. It is perfect for kitchens, bathrooms, clubrooms, . . . for built-in fixtures, wall panels. Would you like to see a sample?

DISTRIBUTOR: THE NEVAMAR COMPANY, BALTIMORE-30, MARYLAND

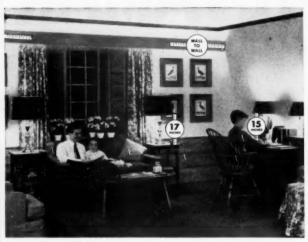
The NATIONAL Plastic Products Company

Manufacturers of Nevamar Decorative and Industrial Laminates . SARAN FILAMENTS . Wynene Molded Products

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This is

## Builders see new sales opportunity in General Electric Light Conditioning!



G-E Light Conditioning recipe for living rooms. The wall-to-wall valance lighting adds a feeling of spaciousness to the room.



Typical Light Conditioning recipe built around a specific seeing task. It shows by actual measurement how to provide the right lighting for sewing.

HOME builders who are Light Conditioning their homes find that it gives them a three-way sales advantage.

First, it offers customers easier, more comfortable seeing, with lighting that's scientifically correct. Second, it shows off every feature of the home to its best advantage—flatters colors, makes the most of design, even makes small rooms seem larger. Third, because a Light Conditioned home looks its best at night, it makes evening sales hours more productive.

## Based on scientific lighting recipes

Light conditioning means the right lamp bulbs in the right fixtures in the right locations to give the kind of lighting that experts agree is best. There are G-E Light Conditioning recipes for every room in the house. Two typical examples are shown at left.

## Gets favorable comments from builders

Reaction of builders who are using Light Conditioning is enthusiastic.

These comments are typical:

"Light Conditioning brought out the real beauty and individuality . . . especially at night. From now on, I want my houses to be Light Conditioned all the way through. It's a real selling advantage."

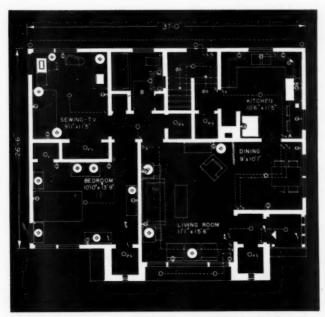
"I noticed that Light Conditioning stopped the visitors to our home. In past years, frankly, nobody even looked at the lighting. Light Conditioning, especially lighted valances, will certainly be in the plans for my future homes."

## Free Recipe Booklet

Learn how to Light Condition your homes. Write General Electric for full information and a free copy of the Light Conditioning Recipe Book. Lamp Division, General Electric, Nela Park, Cleveland 12, Ohio.

You can put your confidence in-





LIGHTING DETAILS in this house conform to the scientifically planned light condition principles now being adopted by many builders in all sections of the country

WIRING systems must be planned and installed to meet the maximum requirements of combined lighting and appliance operation. The basic objective is to provide an electrical system that insures safe operation, ample capacity and convenient use. The principal parts of the system are: (1) Service entrance; (2) distribution centers; (3) feeders; (4) branch circuits.

## Service Entrance

The service entrance is that part of the wiring system that extends from the utility company's service drop, street main, or other source of supply, to the owner's service disconnect service. The disconnect device may be either a fused switch or a circuit breaker. Service entrance cables must be of sufficient size to carry the load connected to them. Codes show only minimum requirements and many well-designed wiring systems will dictate the use of cables larger than specified by code.

## Utility Electrical Supply

Most utilities supply single phase current at either 115 volts, two-wire; or 115/230 volts, three-wire service (115 or 230 volts are nominal voltages and it is meant to include voltages of 110 to 120 and 220 to 240). When possible, it is advisable to select a threewire service. A 115/230 volts, three-

Circuit Futpont	Size of Con- ductor	Conductor Conductor in Amperes	Rating of Protective Device		
			Funt	Cir- cuit Brkr.	REMARKS
Lighting Duriets	£14 Min.	15 Min.	15	12	1 circuit for ea. 500 sq. ft. of floor area
Commitment Outlots	#14 Min.	15 Min.	15	15	I circuit for ea. 500 eq. tt. of floor ores
Kitchen & Bining Room Outliets	#12	20	20	20	50 per cont of bitch- on and dining room outlets to be con- nacted to same cir- cuit
Loundry Range	#12 #8 Min.	20 35	35 Min.	20 35 Man.	115/230 v. circui
Water Heater	#12 Min.	20 Mia.	20 Min.	20 Min.	230 v. eiteuit
Clethes Bryer	#10 Min.	25 Min.	25 Min.	25 Min.	115/230 v. alecul
Heating Unit	g14 Min.	15 Min.	15 Min.		
Dickmarker & Waste Disposal	#14	15	15	15	
Home Freezer	#12	20	20	20	115 v. or 230 v.
Work Shop	212	20	20	20	

Size of Service				Capacity at Can-	Rating of Service Equipment in Ampores			
		factor in	Circuit	Switch:				
	ware Feet ducter		ductor	Amperes	Breeker	Switch	Fusi	
la.	-	1000	6	55	50	60	90	
ex		1500	4	70	70	100	71	
10	*	3000	2	95	90	100	90	
-	Nr.	4000	1	110	100	100	100	

WIRING, LIGHTING AND ELECTRICAL FIXTURES

> Service Entrance

Distribution \

Feeders

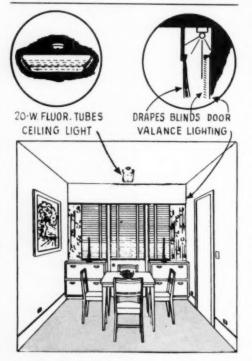
Branch Circuits

Outlets and Switches

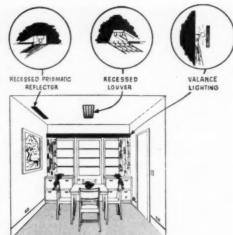
Quantity And Quality Light And Fixtures For Every Room wire service has many advantages over two-wire. 115 volts service, By the addition of one wire to a two-wire entrance, the capacity of the service entrance has been doubled. The 115/230 volts service is a more versatile system since it provides the 115 volts for lighting purposes and the higher voltage for major appliances. The three-phase, four-wire system of 120/208 volts, available in some localities, is convenient for heavy power usages such as air-conditioning. Size of service entrance conductors is governed by the size of the house and the over-all electrical load. Service entrance conductors terminate at the service breaker or fused switch unit.

### Distribution Centers

The fuse or circuit breaker provides protection against overloading the conductors. The distribution center contains the fuses or circuit breakers which protect the conductors to the outlets throughout the building. The distribution center should contain sufficient circuits to provide for the foreseeable electrical needs and a number of spare positions (20 per cent of circuits being used). In number, there should be one circuit for each five hundred square feet of usable floor area for lighting purposes, and one



DINING ROOM B (surface unit); The two dining rooms differ in lighting design. Lighted valances above the door opening and windows emphasize window treatment. In each room design, the large luminous area at the end of the dining room creates a balance with the living room. Depth of valance in this design is governed by the height of the space between the top of windows and ceiling. With the valance top closed, the full quantity of light will flood the draperies and be reflected into the room. Fluorescent tubes, one inch or less in diameter, are best since the distance from valance to wall may be kept to 8 inches and still provide an uninterrupted flow of light. Separate switch control of the valance lighting and center huminaire is essential for flexibility. The center luminaire may be either fluorescent or incandescent. The picture is lighted from a surface mounted unit



DINING ROOM A (recessed louver): Two lighting systems for dining room provide a desired balance between general and local lighting. The two systems create extended luminous areas, free of spots or bright light sources, in a manner simulating natural daylight. The narrow dimension of this room eliminates the use of center recessed spots for illuminating an extensible dining table. A general lighting system using an elongated light source, as fluorescent, gives the smoothness of light distribution which is functionally decorative and architecturally appropriate. The carefully engineered design of this installation eliminates unpleasant brightnesses by incorporating direct overhead sources with slender valances extended below the ceiling line low enough to east some light on the ceiling and to avoid an otherwise dark area on the upper wall and ceiling. A method for lighting pictures or drapery is the use of a directional recessed prismatic reflector

circuit for every 500 square feet of usable floor area for general purpose convenience outlets. Also a circuit for convenience outlets in the laundry; two circuits for kitchen and dining room appliances, and special circuits for attic fan, dishwasher, home freezer and room heater.

It is not a good practice to mix circuit breakers and fuses in the same system. Provisions should be made in the main distribution center for an electric range, a water heater, and a clothes dryer. In small buildings the distribution center is located immediately adjacent to the service entrance. In large homes it may be advisable to put distribution centers in various locations throughout the home. Under this system the main distribution located adjacent to the service entrance would contain feeder protective devices, and feeders would be installed to distribution centers in various sections of the home or building.

## Feeders

Feeders are the conductors extending from the service equipment to distribution centers that contain the branch circuit protective devices. Feeder must be large enough to carry the load it supplies and should have additional capacity that will permit the adding of future load without damage to feeder.

## Branch Circuits

A branch circuit is that part of the wiring system extending beyond the final overcurrent device protecting the circuit. The number of branch circuits required will vary with the size of the residence and the number of appliances.

### Outlets and Switches

The majority of electrical devices used are the "plug-in" type. Therefore, outlets must be convenient. Each room has requirements for convenience outlets. If a convenience outlet is installed for each 12 feet of wall space and a convenience outlet for each section of wall three feet or more long, then a normal seven foot cord will reach a convenience outlet from any point in the room, within four feet of the wall.

In no room should all the convenience outlets be connected to the same circuit. A blown fuse or circuit breaker opening should never leave a room entirely without electrical service.

At least one lighting outlet should be installed in each room or accessible enclosed space of the house. This outlet may be a perimeter outlet for valance, cove or strip lighting. It may be a ceiling outlet.

Light and electrical device switches should be sufficient and convenient. Switches should be so located that there is a path of light from room to room. Locate switches on the lock side of the door and if switches are located in such a position that the light cannot be seen, then equip the switch with a pilot light, so that lights will not be left switched on.

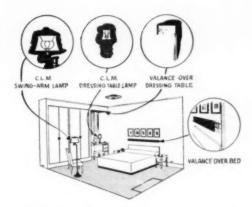
When planning construction of a new building, make provision for telephone raceways and outlets,

## Selecting Material

Selection of material will be governed somewhat by the local codes and the type of residence being built. The majority of homes are wired with one of the following types of material and the corresponding fittings: rigid conduit, metallic tubing, armored cable, non-metallic sheathed cable, service entrance cable, concealed knob and tube. Concealed knob and tube wiring is usually confined to small homes and is not permitted at all in many communities.



LIVING ROOM: The manner of lighting will determine how well the room is suited to its uses. Valance lighting makes a room bright and attractive. A valance runs the width of from window, over fireplace and side window, making the area a focal point in this arrangement. The valance is a "closed-top" type due to height of windows. A valance of this type may be made of lightweight wood or wallboard 8 to 10 inches wide, mounted 6 to 8 inches from the wall depending on the drapery arrangement. At night fluorescent tubes behind valance light up drapes and fireplace. This perimenter lighting is supplemented by a recessed down-light.



BEDROOM: A "reading in-bed" light should not create undue eyestrain. A good reading light can easily be provided by a long fluorescent tube behind a valance or in a reflector mounted on the wall above the headboard. Height of reflector above matress should be approximately 24 inches. Bed lamps on tables at both sides of bed or a pin-up type lamp over the headboard are other solutions. The valance design will provide soft, pleasant illumination and eliminate the blinding contrast of bright spots in a dark interior, Night lights located in convenient outlets are desirable in nurseries and sickrooms. Recessed dressing table niche lends itself to overhead concealed illumination. A small soft white fluorescent tube is installed behind an overhead cornice. A silver-bowl bulb could also be used for this lighting effect. This lighting is combined with "certified" bouldor lamps for the best results. General illumination for the bedroom is provided by an enlarged "bent" glass ceiling unit. Without this general lighting, the lounge chair lamp, the dressing table lighting combination, and other lamps would stand out as bright areas of light, destroying the effect of a background of soft lighting

### Lighting

Lighting is an important consideration while the design of the home is in the blueprint stage. The placement of lighting sources where particular functions are being performed may satisfy a lighting problem in quantity but not quality. Provisions should be made for flexible schemes to prevent excessive contrasts of brightness for good visibility and eye comfort. Architects and designers realize the value of lighting as a medium of design and are using it for decorative purposes as well as utility.

One of the strongest selling features of a new home is often its kitchen. Modern equipment and well planned designs frequently influence the decisions of buyers who are looking for time and effort-saving advantages in their new homes.

Growing public interest in still another modern, energysaving kitchen aid. Light Conditioning, where lighting equipment is chosen and installed according to new tested recipes, offers the builder new opportunities to increase saleability with a minimum of effort and expense.

Present widespread public interest in Light Conditioning has aroused many builders to include these advantages of modern lighting techniques in their demonstration homes.

In surveys based on visitors' preference, ballots solicited at builders' demonstration showings in both Dayton and Cleveland, Ohio, Light Conditioned kitchens were outranked only by lighted valances in living-dining room areas.

As one builder observed, once people have seen and experienced a Light Conditioned kitchen, they realize that this is one of the advantages they can't afford to overlook in choosing a home.

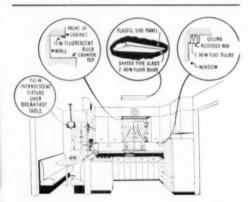
To create a bright, efficient, streamlined Light Conditioned kitchen, lighting must be functionally arranged to assure desirable amounts of light needed for kitchen tasks. Few aspects of home planning and modern home equipment equal the interest in the function of the modern kitchen, its layout possibilities, and the effectiveness of its conjument.

In the development of the modern kitchen many measurements have been made, and inconsistencies, such as differences in counter and range top heights have been resolved. Step-saving studies have resulted in more efficient kitchen arrangements. Cupboard space over seven feet high seems to be disappearing.

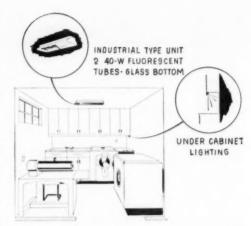
Kitchen lighting, too, can be measured. Such measurements are needed if the true purpose of the lighting, its functional effectiveness, is to be appraised.

To give the builder practical guidance in selection of lighting equipment and its correct placement, a series of new lighting recipes were developed recently in the Lighting Laboratories at Nela Park. Four pretested recipes for the kitchen serve as a guide to the builder in creating a Light Conditioned kitchen.

These four recipes offer a choice of equipment including both filament and the new types of fluorescent units. They are based on various duties which must be performed in the kitchen by the homemaker. Light Conditioning a kitchen must begin with the plans in order to provide light at major work areas—the sink, the range and every important work counter, as well as a ceiling fixture. Either filament or fluorescent may be used, with the following as suggestions for minimum sizes that will give recommended amounts of light for average size rooms.



THE KITCHEN is one of the most important work areas to e lighted in a house. All work surfaces should have a shadowfree high value of illumination. Furthermore, the use of tabes in coves, troughs or behind concealed strips injects a newness in workshops of the home that even a coat of paint could not have attained. The central lighting fixture will give general illumination, but additional light is necessary over sink, stove, or work surfaces. In the modern kitchen, as in no other part of the home, is found a variety of electrical appliances, wiring devices and electrical outlets. Consequently, more fluorescent lighting has been used in kitchens than in any other room, Good utilization of the long, slender characteristics of fluorescent lighting is evident in this planned kitchen, According to recent surveys, than seven per cent of the nation's kitchens are lighted today by fluorescent tubes, and over 65 per cent of the women questioned expressed a preference for this type of lighting. Located over the sink is a recessed fluorescent reflector with glass cover and using two 30-watt fluorescent tubes. Additional fluorescent or lumiline lamps are placed beneath the cabinets, giving high levels of illumination of the working counters. Although the breakfast room is partially separated from the kitchen, a pendant-type incandescent fixture is recommended. The lighting that results is a well-diffused table illumination with softly shaded light in the rest of the area. This room could also have an alternate lighting system consisting of a recessed incandescent spot located directly over the table. Combining the incandescent of the breakfast room with fluorescent in the kitchen will create a relaxed mood



LAUNDRIES can be light, pleasant work areas. Simple lighting units located over working areas for good visibility will appeal to most women. The lighting in this laundry will make tasks easier, increase efficiency and reduce nervous fatigue usually associated with washday. It will also bring out scorch marks so often unseen until the article is used under daylight. Ironing scorches, hurns and spots are readily detected under light from the daylight fluorescent lamp. Good lighting, therefore, becomes a gain and an economy when used in laundries. Generous amounts of light are provided by using an industrial type two-lamp fluorescent reflector (two 40-watt daylight tubes) in the ceiling. Additional fluorescent tubes are located under the cabiners for illuminating the tub and washing machine area. Well-planned laundries, such as this one, are important features in the new houses of today

## Central Ceiling Fixture

Fluorescent Ceiling Fixtures—three 20-watt or two 25watt lamps. Incandescent Ceiling Fixtures—minimum 12inch glass enclosing globe with 150-watt standard bulb.

In addition to generous ceiling light needed to see into tops of cupboards and bottoms of drawers, Light Conditioning requires special light over the sink to prevent working in one's own shadow.

## Sink Lighting

Fluorescent surface units using two 25-watt tubes may be used unshielded in rooms with 8 to 9 foot ceilings if sinks are flanked by cabinets (none above) so that tubes can be concealed from view, as shown here. This unit should be mounted as close to the valance board as possible. Decorative valances between the cabinets to protect eyes from direct glare should extend down at least seven inches, as shown.

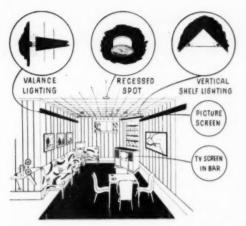
An alternate sink lighting arrangement using filament type fixtures, includes a 75-watt reflector flood bulb in a porcelain socket or a 150-watt standard lamp bulb in a 12-inch enclosing globe.

All three types of fixtures should be attached to the ceiling so that they are centered above the sink. When ranges are flanked by cabinets (with none over range) they may be lighted with this same type of installation.

## Range Light

Another requirement of a Light Conditioned kitchen is special lighting at the range to enable homemakers to see into bottoms of pots and pans while cooking. One method of range lighting that has proven popular with builders when cabinets are located above the range is to use a commercially available fluorescent wall fixture.

This shielded fluorescent unit has one 25-watt or 40-



AN APPEALING decorative note in the recreation area is made by underlining the modern lighting with a wise choice of furniture against a background of soft colors. This room suggests the possibilities in lighting effects and usefulness as an informal living area. It can serve as a playground for children with plenty of light for their games. As a playground for adults it is colorful, festive and attractive. The lighting was designed for all activities that reasonably may take place within the recreation area. Simple down-lights flood the bar area, the card table or reading group. Valance lighting serves a dual purpose, It throws an indirect soft light to the ceiling, making it attractive and bright, and also provides well-distributed light over pictures, murals or draperies. It further provides good reading light for those seated on the divan, Ornaments, bottles or knick-knacks located on glass shelves in the back bar take on new life when lighted. Slim tubes of fluorescent or lumiline produce a warm glow emphasizing the color of the objects

watt tube, as pictured above. A shielded unit with two 60-watt lumiline (long filament) tubes end to end; or a shielded unit for two 60-watt frosted bulbs spaced 18 inches apart with lamps mounted parallel to the wall should be used over ranges.

To assure light across the whole range top, wiring outlets for range lights should be located at 51 inches from the floor. When this is not possible, they may be located 2½ inches below bottom edge of upper cabinet. If rectangular outlet boxes are placed horizontally, it will be possible to use narrower fixtures than when they are placed vertically.

Another practical and popular way builders can provide light for the range is by constructing an attractive shelf with fluorescent lighting concealed in it. This shelf light which is equipped with a glass top, lights not only the range top but gives the homemaker a convenient space for cooking and decorative accessories. The shelf uses a 40-watt fluorescent tube. Its design is simple enough so that it can be constructed on the job.

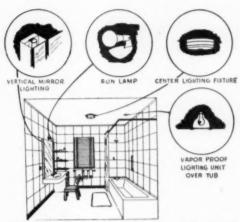
Wall type fixtures may also be used in this same position to light sinks with cabinets located directly above them.

## Work Counters

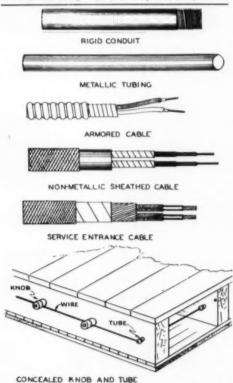
In addition to a central ceiling light, a range light and light over the sink, local light should be provided for each 25 to 30 inch length of work counter.

A 20-watt fluorescent unit may be used unshielded if placed under cabinets. When, however, the unshielded light may be seen when seated in an adjoining breakfast nook or dining area, they must be shielded.

One of the advantages of Light Conditioning that most impresses builders is that Light Conditioning can show up the fine features and detail of the interior.



BATHROOM: Recessed vertical fluorescent units are good in this bathroom because the mirror is mounted flush with the wall. Where cabinets cause the mirror to extend from the wall an inch or more, surface mounted units on each side or around the mirror are more appropriate. An RS sunlamp controlled by a wall switch provides sunrays. Vapor proof ceiling fixtures are installed in tub and shower areas. They may be recessed or surface mounted units matching a larger center ceiling unit. Unless the bathroom is less than 60 square feet, a center ceiling fixture should be used. A night light is an inexpensive safety measure



THE majority of homes being built are wired with one of the above types of electrical conducting materials. The kind of material used is usually governed by local codes



CONVECTORS

Standard free-standing, wall-hung, semi-recessed and fully recessed types.

Low-level for picture windows.

## UNIT HEATERS



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FUEL bills are an inevitable part of home owning and with oil possibly subject to rationing, coal more and more expensive, and gas in short supply in some areas, some people are wondering about electric heating, heat pumps, and even atomic heating plants. Most of these newer developments are still for the future, and the majority of new homes built in comming years will be heated with the regularly available fuels. There is much that the builder and architect can do, however, to see that fuels are used efficiently.

#### Heating Principles

The builder and architect should be responsible for providing the following items:

 A good chimney or vent pipe for the control of combustion and exhaustion of flue gases.

2. A safe structure protected from fire hazards.

3. A tight structure to minimize heat loss.

4. A durable structure protected against moisture condensation.

5. A comfortable building with a minimum of drafts and cold surfaces.

 An economical building for winter heating and a comfortable structure for summer coolness.

Research work has indicated conclusively that emphasis on heating equipment alone is not enough—more attention must be paid to the structure itself to insure comfort.

#### Good Chimney Is Mandatory

The first point to consider in chimney construction is adequate flue area. The quantity of smoke and gas to be removed will depend on (a) the kind of fuel and (b) the amount of fuel needed to heat the house. Flues built for oil and gas burners will not need as large flue dimensions as those which serve furnaces that burn coal. In an area where hand-fired bituminous coal may be burned in a central heating plant, the nominal chimney flue dimensions should never be less than 8 inches by 12 inches.

The height of the furnace flue is also important, and for some furnaces must provide strong enough suction to draw air into the combustion space and up through the bed of ash and fuel; for others, the chimney will only need to supply necessary draft to remove the flue gases from the furn-

The preferred location for chimneys is in the interior of the house. Inside chimneys are not so subject to backdrafts, to moisture condensation, or to smoke backing into the house. The preferred height is not less than 8 feet from the top of the smoke

A HEATING SYSTEM IS MORE THAN A PACKAGED UNIT



OR SOILER (Courtesy of Small Homes Council, University of Illinois).

#### A GOOD CHIMNEY IS NECESSARY FOR ANY SYSTEM









(Courtesy of Small Homes Council, University of Illinois).

pipe connection of the furnace. If the flue must be offset, the angle of the offset should never be more than 30 degrees. Flue lining joints must be perfectly smooth and tight.

Prefabricated chimney units are available today which can be used in place of lined brick construction. Light in weight, they save on installation time and labor, claim savings of up to 50 per cent over brick construction. One type has an insulating wall equivalent to 24 inches of brick. Such chinneys are easily installed, are designed for one- or two-story construction and for use with all fuels. They can be suspended from the ceiling, the floor, or installed with pier support. Flue sections are lined with refractory fire clay, come with joint

cement and draw bands for cementing the sections together. Roof housing is easily fitted to exact roof pitches. These packaged chimneys are accepted by FHA and national heating codes and have fire-safe ratings from Underwriters' Laboratories.

#### Fire Hazards Should Be Eliminated

Some of the more common fire hazards over which the builder has some control (but the heating contractor very little) are:

(1) Chimneys and pipes accumulate soot from soft coal. If chimneys "burn out" and soot catches fire, a danger spot exists if any combustible

material touches the chimney, such as roofing or framing.

(2) Specifications exist for clearance between smoke and vent pipes and adjacent combustibles such as joists or partitions. Protect such surfaces!

(3) Smoke pipes should be short and well supported, so as not to serve as soot collectors. Fit sections together with screws and hang securely. Build to withstand any puffback short of an explosion. If the smoke pipe is





long and has bends, it needs periodic cleaning.

(4) Thermostatic controls are primarily designed for temperature control for comfort. However, limitcontrols exist which can guard against excessively hot temperatures and will stop the stoker or gas burner or oil burner whenever safe tempera-

#### HOW TO USE THE CONDENSED METHOD HEAT LOSS FACTORS

Quantities of heat are measured in units called British Thermal Units (abbreviated BTU)

Heat is lost from a warm building through all of its surfaces exposed to lower temperature. This is called "transmission losses." Heat is also lost due to wind blowing through cracks around windows and doors. This is called "infiltration losses." Total heat loss of a building is the sum of transmission losses plus infiltration losses.

The first step is to find how much heat is lost by transmission. Calculate the areas in square feet of all exposed surfaces of the oom or building including:

Window and outside door area (combined).

2. Net outside well (gross well area minus item 1).

3. Ceiling area (below unheated room or attic space).

Inside walls adjacent unheated rooms.

4. Floor area (if space below floor in not heated). Each of the above areas should then be multiplied by the proper factor from one of the Condensed Method tables.

Next, estimate infiltration losses. This depends on the amount of cold air blown into the house, which is in turn dependent on the size of the window or door and the width of the crack around it. Simply multiply the area of windows and doors already calculated in Step A by the infiltration factor selected from Table 5. Also, since there is more air leakage through door cracks than through window cracks, allow an additional 1000 BTU for each outside door. Add 3000 BTU for each fireplace.

C Add the infiltration losses (Step B) and the transmission losses through the windows, walls, etc. (Step A) all together. The sum is the heat that would be lost from the room or building-if the temperature difference between inside and outside were 100". In other words, this is the amount of heat it takes to maintain 70' inside when the outside temperature is 30" below zero, would occur only in the very coldest sections of the United States.

D Heating requirements are naturally less where the weather does not get so cold. The average minimum temperature in Dallas, Texas, for example, is only 10° above zero. The "design temperature difference" between inside and outside would be 70° minus 10° equals 60°. Therefore, the heating requirement is only 60/100 or 60% of the amount based on 100° TD. The map at the right is zoned according to winter design tempera-tures, and gives percentages by which results from Step C should be multiplied to find actual heating requirements.

#### "CONDENSED METHOD" HEAT LOSS FACTORS "

	WINDOWS & DOORS Multiply sq. ft	. by:
8.	Without storm sash	113
b.	With storm sash	75
2	OUTSIDE WALLS (NET) Multiply sq. ft	. by:
a.	SOLID MASONRY - (Brick, stone, etc.) with plaster applied direct to inside surface of masonry wall.	45
b. c.	AVG. FRAME-Brick Venoer-Wood Sid- ing - Shingles or Stucco - with sheath- ing, bldg. paper, studs, lath and plaster FURRED MASONRY-(Same as 2a with air space between plaster and masonry wall)	,30
d.	INSULATED FRAME - Same as 2b with 1" or less insulation board or blanket	20
e.	HEAVILY INSULATED - Same as 2b with 2" or more insulation	16
3.	CEILINGS & INSIDE Multiply sq. f	t. by
a.	CEILING - Plaster on lath or wall-hoard. No floor above - Attic not vented	31
b.	Same as 3a - with 2" or more insulation	12
c. d.	CEILING of first floor room below un- heated room on second floor INSIDE WALL adjacent unheated room	17
4.	FLOORS Multiply sq. f	t. by
a.	Double wood floor - over cool basement or other enclosed space	13
b.	Same as 4a - but open space below floor exposed to outside	32
5.	INFILTRATION Multiply each sq. (AIR LEAKAGE) window and door are	
a.	WINDOWS AND DOORS Average fit - Not weatherstripped	50
b.	Average fit – weatherstripped (or equipped with storm sash)	30
c.	Poor fit - not weatherstripped	140
d.	Poor fit - Weatherstripped (or equipped with storm sash)	43
e.	EXTRA FOR EACH OUTSIDE DOOR	1000

"Above factors are approximate heat loss through each su. It. of surface with 70° inside and -30° outside.

tures for furnace or boiler are exceeded. Safety should always precede comfort!

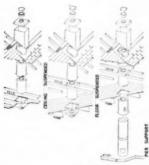
#### Weatherproofing Saves Fuel

In remodeling an existing house, the following weatherproofing steps should be taken: (1) installation of storm doors and weatherstripping outside doors; (2) installation of storm sash, especially living room, dining room and sunroom areas; (3) insulation of ceilings; (4) insulation of sidewalls. (Listed last because most expensive.)

With new house construction, these steps are taken in reverse order. The minimum requirements for FHAmortgaged homes list the minimum values for transmission of heat for walls and ceilings. These are bare minimums and should not be considered desirable. In any case check over your plans with the heating contractor and let him specify allowable neat loss from each room so that provision can be made for necessary weatherproofing to provide comfort without putting unnecessary strains on the heating system.

#### Protect Against Condensation

Vapor barriers are available which will eliminate the possibility of moisture condensation in the walls. These



Van-Packer Corporation

PREFABRICATED CHIMNEY units can be used in place of lined brick construction. They can be suspended from the ceiling. the floor, or installed with pier support

should be applied to the warm side of the studding. Batt blanket and rigid board insulating materials are available with vapor barriers attached.

#### Drafts Can Be Minimized

Good construction is more effective than extra heat in overcoming cold and drafts. Watch for these:

(1) Drafts near outside doors.

#### SMOKE PIPE OR VENT PIPE CONNECTIONS



	COAL	OR OIL		GA	4.5			
TYPE OF SURFACE	With Metal Brook	Without Metal	Furnace	or Besler	Water Heater, Space Heater, Floor Furnaces			
	1" from Ceiling	Bhoeld	Metal Vent	Type B	Metal Vent	Type B		
Exposed Woodwork	33	24		1		3		
Wood Lath & Plaster		38		3		3		
Pleater			1	1 1	1	1		
Mancary or Concrete	1	1	1	1 1	3	3		

- 1. Combustible material me kept away from the amoke pipe. Do not store things near it.
- 2. The amoke or vent pipe may 2. The amoke or vent pipe may be short metal, common ambotion, or porceloin enumed pipe. If sheet metal is used, it should be 24 gauge or heavier. (34 gauge is almost 1/32 inch.) The other materials should be listed by the Underwriters' Laboratories, Inc.
- 3. The size of the amohe or vent pipe should be equal to the size of the connection at the fuel-burning equipment.
- 4. The connection to the chim-ney should be as short and straight as possible.
- All joints and some should be smoke and gas tight and must be fastened securely, so any ex-pansion or "puffs" will not locsen the pipe.
- 4. A draft hood is required as rd equipment for gas-fired devices.
- 7. Automatic or barometric dampers are recommended for use with stokers and oil burners and have been successfully used in installa
- 8. A cross damper should not be used with a draft bood or a baro-metric damper. If it is used (usually only on hand-fired coal installations), it must be between the heater and the check damper.

(Courtesy of Small Homes Council, University of Illinois).

Weatherstrip. Heat vestibules above normal room temperatures.

- (2) Window frame leaks. Weatherstrip. Use storm sash. Caulk outside joints. Apply wool insulation around frame in construction.
- (3) Baseboard drafts. Fill stud spaces in attic with insulation to prevent cold air coming down.
  - (4) Basements-leaky sills, leak-

ing windows. Weatherstrip and caulk tightly. Cold basements make cool floors overhead.

- (5) Drafts down stairways. Weatherproof second-story rooms,
- (6) Drafts due to cold room surfaces, especially large window areas. Insulate cold walls and apply storm sash to windows.

#### Some Modern Types

#### Gravity Warm Air Heating

Gravity warm air heating is usually the cheapest to install, although the addition of controls can raise the initial cost. The best place for chimneys with this system is near the center of the building to avoid long smoke pipes subject to soot.

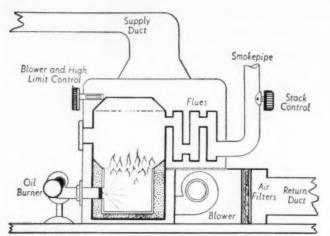
The chimney should be of proper size and height, extending at least two feet above the ridge of the roof, and lined with fireclay or tile. Furnace may be either cast iron or steel of a good commercial type.

Leaders or pipes from the furnace should be taken from the casing hood or bonnet so that tops of leaders are all at same level. Size of leaders depends upon length, air temperature entering rooms, and heat required. Each leader should be given a uniform upward grade of one inch per foot of run.

Keep fittings to a minimum. Use bright tin without insulation unless corrugated asbestos paper is used. A lock-type damper should be installed in each leader. Use double wall stacks and fittings to minimize fire hazards. Install wall stacks and boots during construction to avoid having to cut into load-bearing structural members. Offsets in second floor stack should be of same material as stack and given upward grade of one inch per lineal foot.

Horizontal cold air return ducts should point downward at least 1/2 inch per lineal foot. They should have free air area as least equal to return air grilles used.

Automatic stokers for coal, as well as many oil and gas burners, are used in gravity warm air furnaces with good results.



BASIC PRINCIPLES of forced warm air heating systems are illustrated in this schematic drawing. Blower draws air through heating chamber from where it is distributed to rooms in structure

#### Forced Warm Air Heating

The forced warm air heating system is a warm air heating system in which air circulation is effected by means of a motor-driven fan rather than by the difference in weight between heated air leaving the bonnet and cool air entering the bottom of the furnace, as is the case with gravity warm air installations. One great advantage of forced warm air is the possibility of locating the furnace in attics, utility rooms, or other out-of-the-way spots.

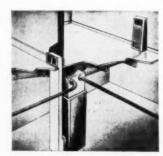
Furnaces for forced warm air systems vary in construction with the fuel selected. Bituminous coal requires a large combustion chamber. In burning oil, the correct size of combustion space is necessary with a long fire travel and extensive hearing surface. Gas-burning units should have low flue resistance so that non-combustible gases will vent off readily. Select a unit which will have readily available spare parts and repair service.

A good humidifier is essential to maintain sufficient moisture in the air for comfort. Automatic humidifiers are usually supplied as standard equipment.

Filters in warm air heating are also essential to remove lint and dust which would otherwise be deposited on walls and furnishings. Air distribution in a room greatly affects confort. The type of register used, its location, type and location of return grilles must all be considered. Baseboard registers can be used with recommended maximum velocity of 300 feet per minute, while wall regis-

ters 18 inches below ceiling should have 500 feet per minute velocity minimum except in bathrooms. Where distance from register to opposite wall is over 15 feet, higher velocities are recommended.

Automatic controls are essential for proper operation of forced warm air systems. Without them, air stratification, high bonnet temperatures. heat overrun or lag or excessive temperatures will usually result. Tests indicate that continuous fan operation provides the best operating results. Controls for most units should include a thermostat located in a room where maximum temperature fluctuation exists, an adjustable furnace switch if desired to start and stop fan, an ignition control, and safety devices to prevent overheating and operate any necessary vents. Zone control on large installations is advisable.



SMALL DIAMETER round 3½-inch supply ducts of new type forced warm air heating system. Several manufacturers are now marketing these units

#### One-Pipe Steam Heating

Many changes have taken place in the one-pipe steam heating system. It has been streamlined and redesigned to use modern boilers with impact convectors and accessories.

A modern boiler is specifically designed for the type of fuel which is to be burned.

Modern radiator design of the thin tube type is a free standing unit and may be enclosed or recessed. The sun-type of cast iron radiator is enclosed within itself and produces a fair amount of radiant heat as well as heat by convection. Convector radiators are the most popular, and can be equipped with dampers in their enclosures to regulate the flow of warm air from the unit. Note that the only way to regulate heat from individual radiators in one-pipe steam is either with dampers and convector type radiators, or to have radiators either fully on or off to prevent pounding or filling up with water.

Automatic air valves and quick vents are probably the most essential equipment used with one-pipe steam systems, particularly the vacuum types which prevent the return of air to the heating system once it is expelled.

Insulating covers should be applied to all piping so that heat will be retained in the pipes and hold heat loss to a minimum.

Owners are advised to heat their boilers all the year round to avoid boiler deterioration, and also to heat hot water economically by using an indirect water heater installed below the boiler water line.

When properly engineered, onepipe steam systems will operate efficiently and provide suitable room comfort.

#### One-Pipe Hot Water Heating

One of the best systems in use, hot water heating has always cost more to install than most other types, but makes up for it in long life and few repairs. In the long run it is economical. The old bulky systems have been replaced with streamlined versions, with efficient boilers, small radiators and convectors, small pipes, and a circulator or booster pump to force circulation and provide heat.

With hot water, it is possible to control the heat in each individual room. In addition, the advent of forced circulation, using electrically-powered pumps to force the flow rather than burning extra fuel, has made possible very economical operation.

While each room can be controlled individually, it is necessary for the (Continued on page 292)







ONE-PIPE HOT WATER SYSTEM operates with thermostat which activates small motor-driven booster pump to force water from boiler to room radiators

(Continued from page 290) same type of radiation to be used throughout either the building or a single zone. Cast iron tube radiators do not heat up as rapidly as convector types and the two will not work well in the same system.

The one-pipe hot water system is cheaper and easier to install, and neater in appearance than the twopipe system. It must be engineered for the correct elimination of air from the system to insure efficient operation. Given a good chimney, an airtrol to eliminate the air problem. and a relief valve to relieve the pressure when it becomes too great, the one-pipe hot water system will perform admirably. If the system is made fully automatic, there should be an automatic pressure reducing valve as well, set at minimum pressure to assure the system's being full at all times.

As with the one-pipe steam systems, better results can be obtained through year-round operation of the boiler, and hot water for domestic use can be obtained economically with an indirect water heater attached to the system.

#### Floor Furnaces

The simplicity of floor furnaces has many virtues, chief of which is low installation cost. No ducts are required. The furnace needs no basement, uses no living space in any



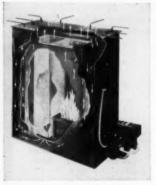
DUAL-WALL TYPE FLOOR FURNACE designed to be set under the wall between two rooms where there are no interconnecting openings

room. It requires very little skilled labor to install. Single units usually have sufficient capacity to heat four or five rooms in a small house.

Two-story buildings usually cannot utilize a floor furnace system because the furnace is hung below the floor, and homes with basements will need an additional heater for the basement, as only the cold air returning to the furnace touches the unit's outer jacket.

A good floor furnace will circulate all the air in the heated space three to five times an hour without excessive velocities or drafts. The unit itself usually consists of a combustion chamber together with interior radiator sections to provide maximum heat transfer surface, all enclosed in a metal inner liner. Space between inner liner and outer jacket provides for cold air return to bottom of the unit.

Gas is the most popular fuel, although oil is used successfully, and bottled gas in locations where gas cannot be piped into the building. Floor furnaces are usually equipped with automatic controls and safety devices to shut off fuel, should the pilot burner on gas units fail. All



COOL AIR flows from floor into separate chamber to come up through heating element of a floor furnace

units should be located as closely as possible to the chimney to provide short ventpipes and adequate drafts for combustion.

Floor furnaces can be made automatic, are efficient, and will provide clean and economical heat at a satisfactory degree of comfort. Low initial cost adds to the desirability of the system.

#### Radiant Heating

Radiant heat rays move from a warmer to a cooler object, and upon coming in contact with a solid surface are either absorbed or reflected. Absorbed heat rays heat the solid (Continued on page 294)



#### with modern baseboard heating panels

For comfort, the areas around large, low windows must be adequately heated... and a B & G Hydro-Flo Forced Hot Water System with baseboard heating panels is an ideal way to do the job. Baseboard panels fit neatly under low windows . . . raise a blanket of warmth against incoming cold ... keep room temperature virtually uniform from floor to ceiling.

Heated water circulated through the baseboards by a B & G Booster is automatically controlled so that the heat supply is always matched to the weather! No wasteful overheating-even in spring and fall, when only a little heat is needed.

Plenty of hot water, too, for automatic washers, baths and showers. The Water Heater of a B & G Hydro-Flo System furnishes an ample volume, winter and summer. Send for catalog of B & G Hydro-Flo Heating Products.



B & G Hydro-Flo Heating equipment can be installed on any hot water heating boiler, new or old



Warm draftless floors



Inconspicuous heating units All year 'round bot water



Dept. CL-11, Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, Toronto, Canada



A TYPICAL sinuous radiant heating coil of 34-inch copper tube on 9-inch centers

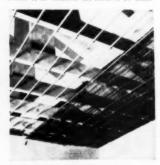
(Continued from page 292)

object and cause it to re-radiate heat. Radiant heat is important because the problem of comfort is not one of room temperature, but rather of body heat and how it is lost and at what rate. Thus, if the surrounding surfaces in a building are heated, radiant heat loss from the human body will be controlled, and it is possible to set up conditions of comfort with temperatures as low as 60 degrees F. The result is more efficient heating at lower fuel cost.

#### Radiant Heating With Hot Water

Radiant heating with hot water can be accomplished with either floor or ceiling panels. "Panel" refers to the heated portion of room surface that serves as a heat source; "coil" refers to the piping embedded in the panel to convey the hot water.

The system is similar to closed hot water systems in that it requires a boiler, combustion chamber for coal, all, or gas, compression tank to take care of the expansion of the water when it is heated, an airtrol to elim-



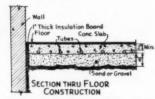
18-INCH COPPER TUBE on 6-inch centers attached to bottom of ceiling joists with expanded metal lath below coil

mate unwanted air in the system, a pressure-reducing valve, a relief valve, and a booster pump.

Radiant heating with hot water, however, keeps the panel at a relatively low temperature with a low rate of heat transfer and saving in fuel. The lower boiler temperatures required mean lower chimney and stack temperatures and fuel saved. Dollar for dollar, installation costs of most radiant hot water heating systems are competitive with other types, the only added cost coming from the additional automatic controls usually needed to realize to the full the added benefits from radiant heating. These costs are absorbed in reduced operating costs in a few

An indoor-outdoor bulb-type of control system, plus room thermostat, has been found effective in maintaining comfort. In conventional heating systems, warmed air moves about the room, tending to rise towards ceilings, with a differential in temperature between ceilings and floors; but with radiant heating, ceiling to floor variance is often as little as 2 degrees F.

Usually no additional provision for humidification of air is necessary, bathroom and cooking steam vapors sufficing. However, the radiant heating system itself cannot humidify or dehumidify the air.



DETAIL ABOVE shows method for building up base, placement of insulation strip around slab, and concrete slab

Where coils go into ceilings, expanded metal lath is preferred for the plaster base, with the coil above the lath and attached to the joists. Where coils are below the plaster base, plastering time is usually tripled and much more plaster is required. Acoustical or other insulating tile should not be used for ceilings in which the coil is to be located. Panels installed in dead air space between floors are ineffective.

Insulation should be used to reduce heat flow in reverse direction to that desired. Where reflective insulation is used, the reflective surface should face the warm side but not be in contact with it; there should be an air space on both sides of the insulating material of at least 34-inch. Vapor barriers under floor panels are essential.

Leaks and corrosion of pipes present no greater problem than in other "closed systems." The choice of piping is unimportant from the standpoint of heat output, but per foot cost, plus installation cost, and labor must be considered. Size of pipe has little to do with heat output either, but definitely determines booster pump capacity required.

#### Radiant Heating With Warm Air

Radiant heating with warm air is accomplished with a closed system utilizing air instead of water but channeling it through duets from furnace-heating chamber and returning cooler air to the furnace, much as hot water is carried through the closed hot water systems.

It is assumed that air and water flow in much the same manner; consequently, with the first duct or tile channel supplied with warm air being the last to return to the furnace, grids or ducts are laid out to insure uniform air flow.

Most standard forced warm air furnaces can be used, except that filters and automatic humidifiers are unnecessary. Floor ducts can be tile, brick baffles, or other inexpensive materials. For economical and comfortable operation, systems should be designed for floor temperatures of 85 degrees F. maximum.

One important consideration is heat loss off the end of the slab. Insulation should be provided here as well as below the floor ducts to prevent heat loss and moisture and vapor accumulation.

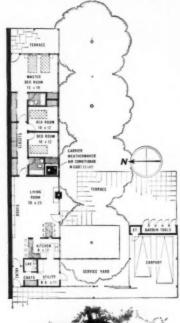
Calculations necessary to install such a system include heat loss, furnace bonnet temperature and entering air temperature at channels, C.F.M. of blower and static head against which it is to discharge.

(Continued on page 296)

### This house should give you ideas

This is a Carrier Weathermaker Home created by Roy Carroll.

It shows you a number of ways in which Carrier Weathermaker Air Conditioning contributed to better house design.





The architects—Carroll, Grisdale & Van Alen is a well known Philadelphia firm whose recent work includes the Youth Study Center on Benjamin Frankin Parkway and the Terminal Building, Philadelphia International Airport (now in progress).



#### The Carrier Weathermaker

is designed for a duct system like that used for forced warm air heating. The Weathermaker cools and heats. It burns gas for heating...uses a sealed electric refrigerating unit for cooling. It is only a little larger than an ordinary furnace.

#### It influenced the design

This Weathermaker Home contains more usable space per building dollar. That's possible because it makes functional use of its air conditioning. Because the new Weathermaker is specially designed for homes, it insures that the air you live in is healthful and comfortable, so the rooms have only one exposure. Only a few movable sash are required. The floor is a simple rectangle. Baths are placed in the interior.

#### It helped pay for itself

This Weathermaker Home makes air conditioning economical. The design makes the house less expensive to build. The design reduces the first cost of the air conditioning. An overhang over the south windows . . . trees shading the roof . . . help to reduce the cost of summer cooling. A solid wall to the north helps reduce the cost of winter heating.

#### It made a better home

This Weathermaker Home is a more convenient home. A windowless wall gains space for storage. Windows, doors and closets are placed to allow the greatest freedom in furniture arrangement. The living and dining areas are completely open and interlacing, while the sleeping areas are completely private. And, of course, the Weathermaker keeps the house far cleaner, far more quiet, and infinitely more comfortable. Of course, this is just one approach. There are many more. How would you do it?



AIR CONDITIONING . REFRIGERATION

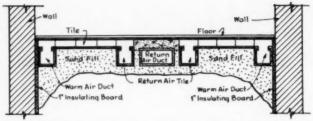
For 50 years—the people who know air conditioning best

#### CARRIER CORPORATION

314 South Geddes Street, Syracuse, N. Y.

Please send me the story on the Weathermaker Air Conditioner and the Weathermaker Home.

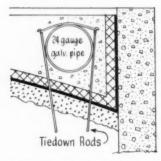
Name
Street
City State



SECTION DRAWING showing detail of floor construction and tile duct system. Although this floor is designed for tile, there are other common materials that may be used

Damper Pinion

DETAIL OF PANEL
BALANCING DAMPERS



SUGGESTED METHOD of holding pipe in place when it is used to form duct in slab

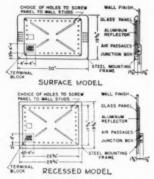
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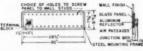
#### Glass Wall Panels

One of the newer developments in radiant heating has been the use of glass wall panels. The units consist of rectangular glass panels ½4 inches thick with an aluminum grid fused to the back of the glass. The glass is almost impossible to break. An aluminum reflector is placed between the glass panel and the back of the mounting frame. Electricity passing through the grid raises the temperature of grid and glass panel to as high as 340 degrees F. Temperature differentials cause air to circulate through vents at the top and bottom

of the panel, thus heating by a combination of convection and radiation. Thermostats provide automatic operation.

Tests indicate that such units, properly installed, will operate efficiently, and can be used economically where the kilowatt rate is two cents or less. In houses heated by other means, individual panels can be useful for spot-heating of bathrooms and similar locations. They are also useful in commercial installations.





BASEBOARD MODEL

ABOVE THREE TYPES of electrical radiant glass panels with details of construction and insulation

#### Perimeter Warm Air Heating

Perimeter warm air systems heat homes comfortably by adding enough warmth to replace the heat which is lost at the points where it is lost. The heat is directed particularly at outer wall areas which, with windows and doors, are responsible for most heat loss. In fact, outside walls in the typical one-story house account for 30 per cent of heat loss, doors for 16.4 per cent and windows for 32.6 per cent making a total of 79 per cent at these three points.

Perimeter heating provides heat at

the sources of heat loss in the following manner:

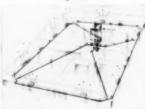
 Warm air rising from lower room levels nullifies the effect of ceiling loss.

(2) The floor is warmed by ducts installed below the surface.

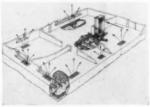
(Continued on page 298)



Warm Air Perimeter Crawl Space Duct System



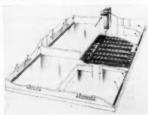
Warm Air Perimeter Loop System



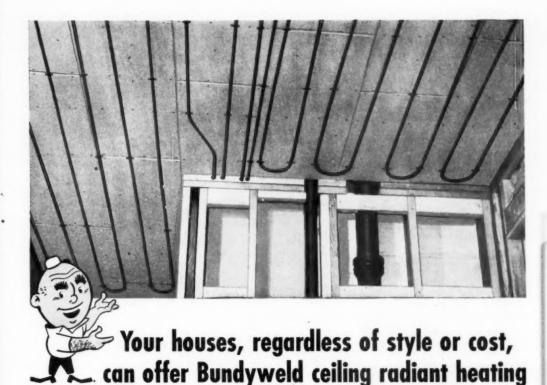
Warm Air Perimeter Crawl Space Plenum System



Warm Air Perimeter Radial System



Warm Air Perimeter Lateral System



One of the most exciting, sales-producing features you can put into your houses. Today's finest heating — and tomorrow's; low in cost, easy to install.

#### Sales points for your houses

With Bundyweld ceiling radiant heating, your houses feature the most even, clean, economical, and convenient heating of all. It cuts housekeeping chores by hours; cuts fuel bills to pieces; postpones wall washing, redecorating, and cleaning of furnishings for years.

Here's heating that truly radiates - evenly, swiftly downward from the invisible ceiling system. Here's heating that feels natural, fresh, invigorating — as thousands of home owners will tell you.

#### Easy, low-cost installation

With Bundyweld Tubing, a ceiling radiant heating system is a cinch to install at low cost. Standard 24' lengths of lightweight, ductile Bundyweld (one end expanded when specified) are easily handled; quickly bent, joined, and mounted onto the ceiling; then easily plastered over. Low-cost Bundyweld saves you time and money on the job, gives finest radiant heating performance, too. Send coupon below for full details.

## Bundyweld Tubing

DOUBLE-WALLED FROM A SINGLE STRIP

WHY BUNDYWELD IS BETTER THRING







ously rolled twice eround interally into a tube of uniform thickness, and massed



through a furnace. Copper coating fuses with steel. Result

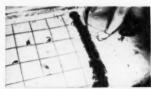


steel tubing, double-walled, and brazed through 360 of wall contact. Send for your copy of handsome 20-page brachure that gives you meety facts on Bundyweld ceiling radiant heating. (Bundy also offers this brochure to future home buyers via full-page, 4-color ads in Better Homes and Gurdens and American Homes.)

Rad	dy Tubing Cornpany iont Heating Division, Dept. AB 452 oit 14, Michigan
insi	Bush me 20-page consumer brochure givin le story of Bundyweld celling radiant heat , I would also like a copy of Bundy trad hure
Nan	•
Post	ion
Com	pony
844	***



Waterproof membrane covers the area within foundations and extends on side to slab top



All joints of waterproof membrane should be lapped and sealed with waterproof sealer



Perimeter system with loop distribution. Feeder duct runs to "T" connection



Reinforcing mesh in slab and over ducts adds strength to thin part of slab



Concrete mix poured over membrane should be dry. Planking protects ducts when pouring

(3) Warnth from mildly radiant floors and circulation of warm room air offsets loss of heat through outside walls and doors.

(4) A current of warm air rising vertically at window surfaces from grilles below them prevents normal downdraft of cold air (usually occurring at windows) from spreading across the room.

The National Warm Air Heating and Air Conditioning Association has prepared a series of definitions and descriptions of various types of perimeter warm air heating. These include:

Crawl Space Duct System. With a home built over a crawl space, the system is suspended from floor joists. Branches from furnace plenum or extended plenum end in registers placed below windows and along outside walls.

Loop System. For homes built on concrete slab set directly on the ground, warm air ducts embedded in the slab follow the outer wall of the building in a continuous loop supplied by feeders from the furnace plenum chamber. Registers are below windows, Floor surfaces radiate some heat also.

Crawl Space Plenum System. The entire crawl space is used as a warm air supply plenum. Stub ducts from furnace plenum chamber direct air currents to window registers.

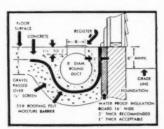
Radial System. Houses with either crawl space or slab construction can use this system, which has individual duets from furnace chamber reaching each window or wall register.

Lateral System. This layout places the furnace at one end of the building, in the center, with an extended main channel or duct running the length of the building down the middle. Every few feet, tile ducts branch off at right angles to both sides and conduct air to wall registers running the length of the building on both sides.

Stdes.

Careful slab floor construction is an integral part of the heating system. The site should be well drained. The finished slab surface should be not less than 6 inches from grade. Fill should be coarse material four inches deep, with waterproof membrane between fill and slab bottom and covering edges of slab. Two inches of insulation around the slab and between it and the foundation, are recommended, 14 inches deep, waterproofed and termite-proofed.

Conventional forced warm air jurnaces and controls may be used.



Cross section details of construction units for properly installed perimeter duct

although basementless homes usually find the downflow type most satisfactory. Thermostat, limit control, fan switch, and burner control are necessary. Balancing the system is accomplished by means of sleeves inside ducts below registers at windows and walls. Baseboard and wall registers may also be controlled by friction dampers in the stackheads.

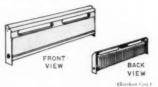
#### Baseboard Heating

Baseboard heating, which furnishes heat both by radiation and convection. can be installed as a complete system or as an adjunct to other heating devices. A high percentage of heat from baseboard panels is distributed by radiation, which reduces rising warm air currents and the wall-streaking common with ordinary radiators.

Baseboard panels can be used effectively with one-pipe hot water



Above: Type "R" cast iron baseboard panel. Below: Type "RC" cast iron baseboard panel with fins at back to increase heat transmission



systems, two-pipe forced hot water, two-pipe gravity hot water, and twopipe steam systems. They cannot be used with one-pipe steam systems because of venting and condensation problems.

One-pipe hot water systems using baseboard panels either use a conrentional basement main or a seriesloop system with the baseboards being part of the main. Control systems are the same as those for other hot water systems of heating.

Baseboard panels come in three basic types, each of which requires that substantial wall areas be well insulated wherever the panels are placed. Convector types consist of finned tubing or pipe within a baseboard style metal shell. These may

(Continued on page 300)



### This "Niteair" Rancher Fan



appeals to home buyers! quick to install! fully guaranteed!

- The Complete, efficient "Package" unit.
- Four sizes: 24" 30" 36" and 42"
- Sealed Ball Bearings never need oiling
- · Rubber-cushion mounted; quiet, vibration-free
- · Designed for homes with Low-Pitched Roofs
- · Inexpensive, simple and easy to install

Ask for specification sheets #629 and #630 and Manual #601. Local LAU representatives can engineer fans to the specifications of homes you are building. Two-speed motors available on all residential fans.

THE LAU BLOWER COMPANY • 2023 Home Avenue, Dayton 7, Ohio

# How You Install a Complete Chimney In 97 Minutes

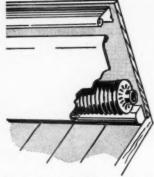




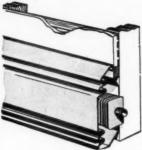
A complete Van-Packer Chimney can be installed by one man and a helper in 97 minutes. Here's how: 1. Nail chimney support in place. 2. Set each Van-Packer section and cement with prepared acid-proof cement furnished. 3. Nail flashing to roof, slide housing over sections, and cement rain cap in place. It's as easy to build as that. Everything furnished—nothing else to buy. Nationally distributed so you can get immediate delivery. Write for free folder and name of nearest dealer or jobber.

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Convector type baseboard panel with circular fins



(C. A. Dunham Co.

Convector type baseboard panel with rectangular fins and 1-inch pipe located off center

(Continued from page 298) either be single or double core and the shell may have dampers built into it at grill or openings. Type R panels are cast iron, water backed, without fins. Type RC is cast iron but has fins attached to the back and slots at the top to aid in convection.

Some of the advantages of baseboard heating include fuel economy, lower temperature differentials, cleanliness, fitting into decorative schemes easily, added floor space, lower maintenance costs, fittings and piping easily accessible, and satisfactory comfort.

#### Control Systems

It is fully as important to have a good control system as to have a good heating system, for without it the heating system will not function at maximum efficiency. The following control set-ups are basic and will be used depending upon the heating system selected and the degree of automatic control desired:

Hand-fired coal, gravity warm air. A room thermostat governs operation of damper motor, which is connected to both draft and check doors on

(Continued on page 304)





#### T-30 PACKAGE SET

For automatic heat at home, the General Controls T-30 Package Set is a sure short cut to economical and trouble-free comfort. Included with the graceful T-70 Timer Thermostat, is the long-proved, Type K3 Magnetic Gas Valve, Transformer and Thermostat Cable. Optional Timer Thermostat is furnished in two models, either for internal night setting (T-70-T) or with both day and night temperature selection at your finger tip (T-70-X) on the face of the sleek and satin-finished cover.

Soft Seat-For All Gases-Way back in 1932, the forebear of the present K3-A was originated, developed and pioneered by General Controls. It became the first in a long series of quiet, dependable, two-wire solenoid magnetic gas valves that today are standard equipment at home and in industry for controlling gas to warm air furnaces, gas-fired boilers, conversion burners and similar applications. Closing with the gas flow, in the K3-A the pressure is on the top of the soft seat assuring indefinitely tight valve shut-off. Closing is automatic in case of power failure, and the K3-A, like all other General Controls solenoids, is absolutely humless when energized. Current consumption is low and the extremely compact valve easily meets high flow capacities and operating pressure requirements. In the K3-A you find just one more sound reason why the leaders everywhere declare that for the best in automatic controls, it's General Controls!

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls

FACTORY BRANCHES: Baltimore 5, Birminghom 3, Beston 16, Buffele 3, Chicago 5, Cleveland 15, Calumbus 15, Dallos 2, Denver 4, Detroit 21, El Paso, Glendele 1, Hauston 6, Indianapolis 4, Kanses City 2, Milwaukee 3, Minneopolis 2, Newerk 6, New Orleans, New York 17, Omneb Philodolphia 23, Pritsburg 22, St. Louis 3, San Francisco 7, Seattle 1, Tuisa 6, Washington 6, D.C. DISTRIBUTORS IN PRINCIPAL CITIES



## Blo-Fon

ELECTRIC EXHAUST VENTILATORS

Pry-Lite

RECESSED LIGHTING FIXTURES



• Regardless of architecture, color motifs or styling, there is a Pry-Lite for every room in the home. New, attractive finishes of chrome, copper, brass and painted hammertone gray blend with any furnishings or interior decoration. Beautifully patterned glass gives clear, full illumination without glare or dark spots. Snap-on fronts make Pry-Lites easier to clean or relamp there are no screws, no hinges, no nuts, and no tools needed.

And, more important, Pry-lites (1000 series) cut costs because they have . . . (1) A pre-wired, built-in pull bax; (2) adjustable mounting straps that eliminate framing-in time; (3) a plaster flange which fits any finish; (4) and they are U. L. approved for any standard building wire.

• A Blo-Fan electric exhaust ventilator makes the kitchen complete and modern. Its patented blade combines the volume of a breeze fan with the power of a blower. Its attractive grille is removable without tools and the motor assembly merely lifts out for easy cleaning. Pry-Lite modern recessed lighting fixtures complete the picture.



O-SPEED SWITCH

This exclusive Blo-Fan feature makes it as easy to control the rate of ventilation as it is to control the speed of a car. Standard equipment on De Luxe Model 210 Blo-Fan only.

Beo-Frank America's Most Imitated Home Ventilator

They Little The Original Recessed Lights with Snap-on Fronts

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#### Make Buyers Out of Shoppers With

## Value... Quality

Survey after survey has shown that there is a market for approximately 1,000,000 houses a year for the next several years...BUT, all building trades are faced with keener competition than ever before.

Because . . . People who buy, build or remodel are more discerning—they are demanding VALUE and QUALITY when they invest, even before price. That is when the reputation of Blo-Fan electric exhaust ventilators and Pry-Lite recessed lighting fixtures is an important factor for architects, builders, and electricians to consider. The reputation of Blo-Fan and Pry-Lite names is built on value and quality. Skilled craftsmanship plus quality material from reputable sources have been important in building the Blo-Fan and Pry-Lite names and what they stand for—just as your name and reputation are made and recognized through the products you use and the way you use them.



Remember the old adage, "Quality is remembered long after price is forgotten." Remember, too, that when you specify or install Blo-Fan electric exhaust ventilators and Pry-Lite recessed lighting fixtures...

"their reputation will guard yours"

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EASTERN FACTORY: 124 Adams Street, Newark, New Jersey
Warehouses: Los Angeles, San Francisco, Chicago, Atlanta
Stocked by more than 700 wholesalers in over 350 cities.

"The hottest news in heater history!"

Blomaster
INFRA RECESSED WALL HEATE



"Safe!

In new or old construction. On remodel jobs, merely cut a hole between studs . . . There's no plastering to do . . . The attractive heater front covers the rough plaster edges . . . "Rough-in" box mounts flush with flanges against the wall, has two knockouts in bottom, and no extra pull box is required . . Heater assembly is secured to "rough-in" box with four machine screws, thus eliminating the need for drilling extra holes in finished walls.

#### MORE HEAT WITH LESS CURRENT

Real economy is provided by the Glomaster auxiliary heater... Uses no more electricity than an iron... Radiates heat from floor to head with absolute safety... There are no flames to ignite clothing or towels... Modern wire grille remains at safe temperature—will not burn the skin if touched... Heating element is non-metallic—will not transmit shock... Choice of chrome or baked white enamel finishes... U. L. ApproveD

#### AMAZING HEAT ELEMENT NEVER BURNS OUT!

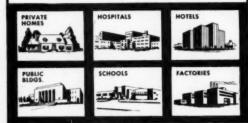
Sintered carbide compound heating element is not affected by splashed water and will not corrode, If forel stocks are not available, ask your Blo-Fen or Pry-Lite distributor to order Glomester For you.

#### PRYNE AND COMPANY

Pomona, California Newark, New Jersey THERE'S AN AUTOMATIC

## JOHNSON Oil BURNER

FOR EVERY HEATING NEED



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Vulcan combines a smart, modern-looking, comfort assuring heating design with easy installation. For either

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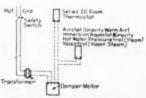


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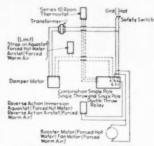
HARTFORD, CONNECTICUT



HAND FIRED COAL GRAVITY CIRCULATION

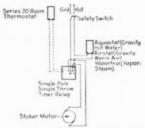
(Continued from page 300)

furnace or boiler by a chain arrangement. Limit control closes draft door and opens check door if the furnace overheats.



HAND FIRED COAL FORCED CIRCULATION

Hand-fired coal, forced circulation. This system has a thermostat, damper motor, transformer, limit control, and in addition, a relay to start and stop blower motor or booster pump motor. There is also a reverse-acting control in the voltage power circuit for starting the booster pump or fan motor in case the room thermostat is not calling for heat. This takes care of any override in temperature within the heating unit itself so that no injury will result from overheating.



#### STOKER FIRED COAL GRAVITY CIRCULATION

Stoker-fired coal, gravity circulation. Almost identical to system No. 1 above, these controls differ in the use of a timer relay rather than a damper motor and transformer. The relay provides for regular minimum feeding of coal to maintain the fire in the heating unit during the long intervals when room thermostat does not call for heat.

(Continued on page 306)

## Getting to be a habit—







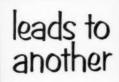


one good thing



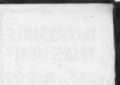














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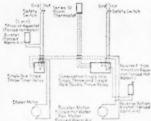
advantage. The motor is completely protected from the hot, greasy air. No dust or steam or grease are blasted at the motor. It always stays clean and cool in its own compartment-needs less frequent oilinglasts years longer. You can count on

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5705 So. Main St., Los Angeles 37, Calif.



STOKER FIRED COAL FORCED CIRCULATION

(Continued from page 304)

Stoker-fired coal with forced circulation. These controls are the same as system No. 2, except that a timer relay is used in place of damper motor and transformer. In some hook-ups a stack control is used instead of relay for the hold-fire. This, however, has a tendency to corrode and deteriorate. Timer relay is preferred.

Oil-fired forced warm air. This is similar to oil-fired gravity circulation, with the exception of a limit control. Instead, a combination fan and safety switch is installed. This starts the fan motor when the bonnet of the furnace has sufficient heat. It will also stop the oil burner in case of excessive bonnet temperature. This hook-up delays the starting fan until heat is

(Continued on page 308)





THEY ARE USED FOR THE CONTROL OF TEMPERATURE PRESSURE. LQUID LEVEL AND MECHANICAL OFBRATIONS. THE MERCURY SWITCH IS A FEATURE IN MERCURY CONTROLS. THE BRAINS TO BE THE MERCURY SWITCH IS THE ADDRESS ARETY. BETTER PERFORMANCE AND LONGOR CONTROL LIFE-ALL OF WHICH ARE IMPORTANT WHICH ARE MODERNAMED AND LONGOR CONTROL LIFE-ALL OF WHICH ARE IMPORTANT WHERE THE CONTROL SAFE REQUIRED. WHY CONSIDER LESS WHEN YOU CAN GET SO MUCH MORE

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H. C. BIGLIN CO. INC.



"More living room is no problem with this hideaway furnace"

says Phil Hedback,

Bryant-Hedback Co., Indianapolis, Ind.

With useable space at a premium, it is little wonder that the Bryant Hideaway Gas Furnace is proving so popular. Architects and builders say it not only sayes valuable space, but the furnace, itself, is a real selling feature. Tucked away in the attic-or suspended from the ceiling or under the floor-this dependable forced-air furnace provides a world of comfort for householders while releasing extra space for storage, utility purposes or plain living. The Hideaway is a true Bryant product-long on dependability and gas economy, and with positive automatic control. Naturally, the casing temperatures are low. You'll also like the way it goes in-structural steel mounting channels come with it and can be used to suspend the unit when it is so installed. Yes, you'll like this Bryant Hideaway Forced-Air Furnace that gives you both added living space and better heating. Why not ask your Bryant Distributor for full details? Or write Bryant Heater Division, Dept. 173, Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10, Ohio.



#### Bryant Model 324 Hide-away Gas Furnace

Cen be tucked away in the attic, or suspended from ceiling or under the floor. Fully automatic, forced-air unit with Hevigage heat exchanger. Available for all gases. AGA inputs: 65, 85, 100 and 125 thousand Blu per hour.

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"Name" home equipment which reflects built-in quality and performance and does not add to construction costs always adds "eye" and "buy" appeal to any home.

WILLIAMSON Warm Air Furnaces are modern in design, made of top quality materials and have built-in craftsmanship of over 60 years of furnace design and manufacturing experience. There are WILLIAMSON Warm Air Gravity and Forced Air Furnaces for any type fuel and any size home with basement or utility room. WILLIAMSON'S complete line of Pipe and Fittings round out the full package of equipment required to heat any home comfortably and economically.

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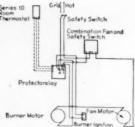
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Have an authorized Williamson Representative give me information on:

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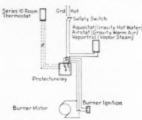
Street. City\_

Zone. State



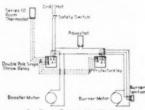
OIL FIRED FORCED WARM AIR

(Continued from page 306) built up, thus warming instead of cooling rooms when the unit starts up.



OIL FIRED GRAVITY CIRCULATION

Oil-fired gravity circulation. This system is identical with hand-fired and stoker-fired coal hook-ups except that the protecto-relay replaces timer relay or damper motor. This protectorelay is for the intermittent burner ignition, probably the most essential control in any oil burner installation. It stops the burner if there is a stoppage in oil flow, and also stops ignition motor if ignition fails.



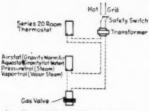
OIL FIRED FORCED HOT WATER

Oil-fired forced hot water. When the room thermostats call for heat, the relay closes the power circuit and starts the booster motor. This also energizes the protecto-relay, which starts the oil burner. The aquastat will stop the oil burner if water temperature becomes too great, while the booster pump will continue to run until the room thermostat is satisfied.

Gas-fired gravity circulation. The line voltage power circuit is reduced in voltage for operation of a solenoid gas valve installed in the gas supply pipe. The valve operates from a lowvoltage thermostat, through the limit

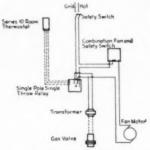
308

COAL



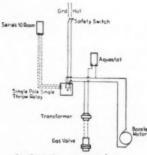
#### GAS FIRED GRAVITY CIRCULATION

control, which prevents overheating of the unit.



GAS FIRED FORCED WARM AIR

Gas-fired forced warm air. This is the same as the oil-fired forced warm air except that a single-pole, single-throw relay is used instead of the protecto-relay. The room thermostat calls for heat, closes the relay, and causes the gas supply valve to open. Bonnet temperature activates the fan which will run as long as bonnet temperature stays high enough. Fan and safety switch prevents bonnet from overheating.



GAS FIRED FORCED HOT WATER

Gas-fired forced hot water. This is similar to the gas-fired warm air system except that an aquastat is used in place of combination fan and safety switch. Booster pump operates directly off room thermostat, runs as long as it calls for heat. The aquastat is strictly limit control.

(Continued on page 310)

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HEATING LINES

Loop Radial Lateral

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When you know the facts about WEIR-MEYER steel warm air heating equipment, we believe you'll see why you'd choose it for your own home. Of course, we don't know how many builders and contractors own WEIR-MEYER, but we do know that many continue to install our equipment year after year in the homes they are building. And we believe that the reason is this: WEIR-MEYER performance pleases home owners. After all, isn't that what you want?



Whatever the fuel—gas, oil or coal—there is a WEIR-MEYER warm air steel unit to fit youse job. Outputs range from 35,000 Bts/hr through capacities of 1,000,000 Bts/hr and greater for schools, churches, factories and other large installations.



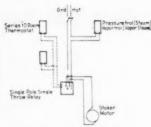
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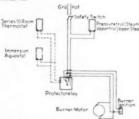
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#### STOKER FIRED STEAM WITH YEAR ROUND DOMESTIC HOT WATER

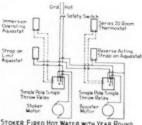
(Continued from page 309)

Stoker-fired steam system with year-round domestic hot water. This has the same controls as for stoker-fired steam with gravity circulation, except that a single-pole, single-throw relay is used instead of a timer relay. An immersion aquastat connected in parallel with the thermostat causes the stoker to run enough to maintain heat within the unit and heat domestic water. This also acts as a hold-fire control.



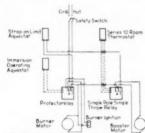
#### OIL FIRED STEAM WITH YEAR ROUND DOMESTIC

Oil-fired steam with year-round domestic hot water. Identical to the stoker-fired steam control except that a protecto-relay is used in place of the single-pole, single-throw relay. Immersion aquastat and room thermostat start the oil burner, while limit control prevents overheating and damage.



STOKER FIRED HOT WATER WITH YEAR ROUND DUMESTIC HOT WATER

Stoker-fired hot water with yearround domestic hot water. Immersion aquastat causes stoker to maintain boiler temperature. In addition, a strap-on limit aquastat should be installed to prevent injury to the heating system should the operating aquastat fail. The thermostat operates the relay to booster pump, controlling the flow of hot water to the rooms. A reverse-action, strap-on aquastat starts booster pump as a safety measure to take care of water temperature override.



OIL FIRED HOT WATER WITH YEAR ROUND DOMESTIC HOT WATER

Oil-fired hot water with domestic hot water the year around. This is the same as the stoker-fired, except that the protecto-relay is used instead of a single-pole, single-throw relay, and reverse-action aquastat is eliminated.

Other Controls. In addition to the basic control hook-ups outlined above, there are zone controls for close local control of heating, indoor-outdoor systems which control temperature by a bulb outside the building connected with another located in the stream of the heating medium, and both connected to a temperature controller. There are also pneumatic control systems and electronic set-ups which replace the low-voltage electric systems outlined above in some situations.

#### Heating Commercial Buildings

Heating commercial buildings requires consideration of the size and type of building, its functions, space requirements and limitations, installation costs and maintenance costs, as well as operating problems. For any small commercial structure, the heating plant should be calculated to cost roughly 10 per cent of the total cost of the building; otherwise, heating may prove inadequate.

The simplest structure to be heated is the small monitor building occupied by a neighborhood service business. Floor space is usually at a premium, and heating must be economical and not take up space. For this purpose, floor furnaces, unit heaters, or radiant panel constructions have proved desirable.

Another type of one-story commercial building has its space divided typically into showrooms, offices, and

(Continued on page 312)



equipment.

LIGHTWEIGHT—only 10 to 15 lbs. per ft. Installs easily and quickly in less than an hour. The chimney is mounted between ceiling joists, directly over heating unit, saving valuable floor space.

Vitroliner is designed for 1 or 2 story contraction to fit the individual roof pitch, with a TAILOR-MADE roof flashing and flue housing—no cutting or fitting is required on the job! The chimney is built around a vitreous enameled metal flue liner—encased in a seamless tube of high temperature—resistant insulation—with an outside metal covering.

In two-story construction (Type "L") the flue can be baxed in a corner of a room, closet or bath room as illustrated.

Quality-built for long life—time tested for over 10 years and proven successful. Nationally accepted by large project home builders and single contractors. Accepted by F.H.A. and listed by Underwriters Laboratories for ALL fuels.



#### FEATURES

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Mr. Builder:
SAVE THAT EXTRA PIPE
-it's almost enough
for your next job!

When you can save precious pipe today, it's news, and a saving of 40% is BIG news! Hundreds of Burnham BASE-RAY® Radiant Baseboard installations, made with the Series Loop System, (See diagram) have proven that with this system you'll not only save pipe, but fittings will be 49% less... installation labor 54% less! And remember... with BASE-RAY you'll be giving your customers the most efficient, space-saving radiant baseboard heating available!

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RADIANT BASEBOARD

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SYSTEM

Women especially prefer the few sweeping linas and space-acting of word it og a s of BASE-RAY

RADIANT BASEBOARD

The Series Loop System shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and base may be supported by the same shown here is ideal for rooth type and ty

Burnham Corporation

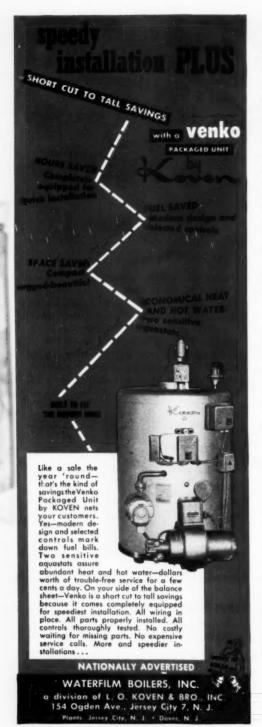
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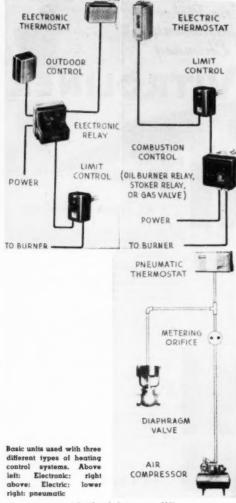
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CONDENSATION ENGINEERING CORPORATION





(Continued from page 310)

workshops—for example, commercial garages. Directfired unit heaters, or combinations of unit heaters with self-fired radiators can be used. Forced air heating will give satisfactory results, as will central steam and hot water systems with radiators or convectors. Radiant panels installed in the floors will also give good service.

The third main type of small commercial building is the multi-story multiple purpose building with first floor used for offices or warehouse space, with offices or living quarters above. This type often encounters the problem of different tenants trying to regulate heat in their own quarters by turning off radiators, partially closing them, opening windows and wasting heat. Two-pipe steam and both one and two-pipe hot water systems usually prove most effective.

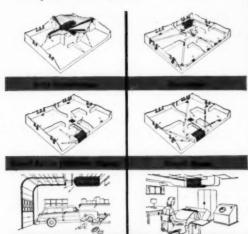
#### Air Conditioning

Air conditioning is the control of temperature and humidity; it also includes the control of air motion (Continued on page 318)



### Hidden Comfort med

Adaptable to any type of installation or floor plan, The Norman Southerner is one of the most flexible forced-air gas furnaces on the market. Fits in any small unused space-saves on installation, chimney and piping costs. Four sizes: 40,000 to 100,000 BTU. Send for literature, specifications and name of nearest representative or distributor.



Made by the makers of the famous

Norman Three Sixty Unit Type Gas Heater



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When more hot water is needed faster, Aldrich Hot Water Heaters rise to the occasion. Aldrich Heaters, in seven sizes, deliver from 93 to 850 gallons per hour, at 100° rise. And they deliver more contracts to you - because you can install them for either gas or oil firing, or for later conversion. Get all the hot news on Aldrich today. Write for name of nearest jobber. Also details on other Aldrich units.



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## The "little extra" that clinched a sale . . .



## YOU?

You sensed that your prospects liked your house, but apparently had seen several they liked equally well.

So you turned on the "And look at this special feature" sales talk. Colored bathroom fixtures, maybe—or easy-open windows—or tricky hardware—or perhaps a built-in kitchen ventilator. And the lady succumbed—didn't she?

FASCO ventilators are this kind of "little extra" that clinches sales. And the wonderful thing is not only that they help close deals and pay you extra profit—but you can point to the brand name with special pride—because no ventilators in America are better made or better values.

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#### **BELT DRIVE FAN INSTALLATIONS**



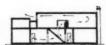
#### Basement

If basement windows are large enough to provide ample exhaust, this location is sometimes preferred. Enclose stairwell and locate fan under stairs (removing risers) or on one side.



#### Gable Installation

When the attic is finished, making it airtight, the fan is often installed behind a manual shutter or metal louve in the gable. Entire attic serves as a suction box for opening in attic floor.



#### **Attic Stairway**

Fan is connected with an enclosed portion of the stairwell. No ceiling grille is required, attic door is opened when fan is operating. Valuable attic floor space is taved.



#### Suction Box

Because many attics are not sealed, it is necessary to use an airtight suction box over a centrally located ceiling grille to assure the full effect of the fan in the rooms below.



#### Vertical Discharge

All Hunter belted units can operate in a horizontal position, discharging vertically. This solves installation problems in many modern homes having limited attic clearances.



#### Attic Wall

In homes where main portion of attic space is finished, unit may be mounted in partition wall, discharging into unfinished attic space. Fan is installed in the shipping crate.

Hunter Fan Dat

#### PRESSURE OF ATMOSPHERE FOR VARIOUS READINGS OF BAROMETER

VARI	OOS KEADING	3 OF BARON	REIER
Barometer	Pounds per	Barometer	Pounds per
Inches	Sq. Inch	Inches	Sq. Inch
28.00	13.75	29.75	14.61
28.25	13.87	30.00	14.73
28.50	13.99	30.25	14.85
28.75	14.12	30.50	14.98
29.00	14.24	30.75	15.10
29.25	14.36	31.00	15.22
29.50	14.48	31.25	15.34

### A 3-Minute Course on Low-Cost Home Cooling

#### HOW ATTIC VENTILATION COOLS A HOME

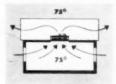
It's cooler outside at night



All day long a home absorbs heat from the summer sun. At night when outside temperatures have fallen to 75°, for example, the dead hot air in the attic may remain as

high as 110°. This keeps the rooms below at an unbear-

Attic fan pulls the cool air inside



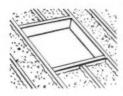
A Hunter Attic Fan pulls the cool, refreshing outside air into house, driving out the ovenlike heat from the attic and every room. A few minutes after the fan is started, room

temperatures drop 10° to 20°. An automatic time switch able temperature up to 95° or more. Nobody can sleep, can be used to switch off the fan while occupants sleep,

Step 2. Provide adequate louvers in proper location

#### HOW TO MAKE PROVISION FOR ATTIC FANS IN YOUR HOMES

Step 1. Frame for ceiling opening



By framing and installing fan when home is built, no extra construction expense is involved. If installation is to be made later, framed opening can be temporarily plastered over or closed with plywood.



On new construction it costs little to include exhaust openings to handle attic ventilation. These may be gable louvers or porch, soffit or basement exhausts, depending on the design of the house.

#### NEW HUNTER PACKAGE FAN IS INEXPENSIVE AND EASY TO INSTALL



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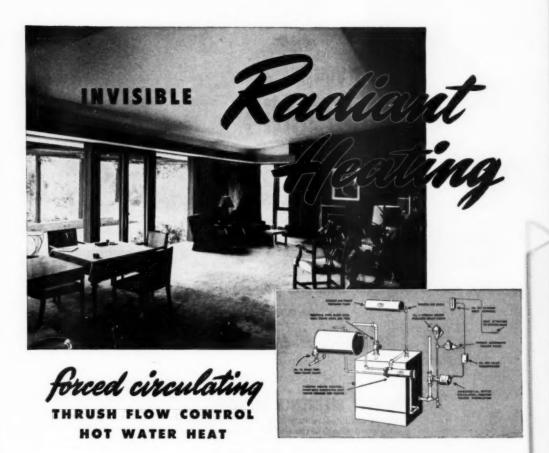
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#### AMERICAN BUILDER

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Overhead panel radiant heating fits many types of small businesses

(Continued from page 312) and distribution, and cleans the air. The simpler type of air conditioning for homes involves the use of attic tans of various types, including home cooling fans with plenum chamber (suction box), which cool the house in summer by providing proper ventilation. Ceiling ventilators are also in this class.

Winter air conditioners are furnaces which send forced air, heated, humidified and filtered clean to each room.

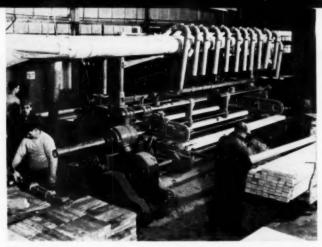
Year-round air conditioners for homes are units which provide: (1) summer cooling. (2) dehumidification for summer temperatures; (3) winter heating; (4) humidification for winter temperatures; (5) air cleaning—a filtering out of dust, pollen, soot, and lint the year 'round; and (6) air circulation with ventilation—a draft-free flow of clean air, providing uniform temperatures.

Self-contained air conditioners are package units which give summer cooling, dehumidification, filtering (also air circulation and ventilation when installed with an outside connection). They are designed for individual rooms and can be used with the work or installed directly in the space to be served. Self-contained units are also available which give year-round air conditioning for individual room areas, heating as well as cooling.

Several manufacturers now have available small capacity air conditioning units adaptable for installation in small, low-priced houses.



Radiant floor panel installation going into small office area



SEASONED LUMBER starts on its way through a prelab house factory. This huge machine makes as many as 23 cu's in one operation

PREFABRICATION offers today's builders a choice between construction of "complete" homes pre-built in the factory and the use of prefabricated structural members to be assembled on the site in conjunction with conventional building methods.

Under the first plan the contractor or builder buys a basic dwelling largely complete, generally including all services and materials except masonry, plumbing, electrical items and finish painting. Some manufacturers even include electrical ranges and refrigerators.

#### Opportunities for Profit

For the individual contractor or builder with minimum capital to invest, "complete" prefabricated homes offer unique opportunities for profit. Financial risk is reduced because of greater assurance of delivery, quality control of materials and finishes, low overhead for the builder, and minirum investment.

Field erection is fast and easy due to accuracy of dimensions and fit, and the use of standardized sizes of structural members. Houses can be placed under roof in one day with the consequent advantage of sheltered construction for the rest of the work. Erection costs are thereby reduced and volume construction made possible.

The builder also benefits from the sales promotion and advertising aids of the manufacturer, as well as from the research and advisory services of the manufacturer's organization. Even financing is offered by some manufacturers.

The usual working arrangement between builder and manufacturer is in the form of an exclusive franchise for a given area. The builder is responsible for all arrangements for procurement of land, building permits, and other local details, and handles sales and servicing of completed homes.

#### Salability

Manufacturers' attention to design, which now ranges from the traditional to contemporary styles, with the inclusion of personalized features, has gained increasing acceptance and popularity for the prefabricated house.

Individual taste preferences are satisfied in a wide range of interior finishes—plaster, gypsum board, or almost any other type of wall covering—and in flexibility of room arrangements. Variation in elevations, ornamental exterior details and floor plans removes the element of sameness which formerly marked many low-cost homes.

The assurance of delivery to the customer, the reputation of quality materials and construction, and the low-cost feature make these prefabricated models particularly attractive for FHA and GI financing. They carry a high rating for such government approval, and are therefore easily marketable.

#### Combination of Prefabrication, Conventional Building Methods

For those who find it more practical to combine conventional onsite methods with prefabrication, there is an opportunity for profit in cooperation with an important member of the building industry—the lumber dealer. Without going into "complete" prefabricated construction, the builder can still take advantage of some of the money-saving features of prefabrication.

Prefabrication by definition requires the use of factory production methods, and individual builders may



JIG AND FLOW LINE for interior wall partitions. "Starting" jig is in foreground, and subsequent stations complete the panel assembly

have neither the equipment nor the storage space to develop these methods. By arranging to serve an individual builder, or group of builders, the lumber dealer may use his facilities to prefabricate on a profitable scale.

Factory-production methods require stock-piling of materials such as lumber, plywood, wallboard, insulation and framing members; the use of power machines and materials handling equipment. Ordinarily, the lumber dealer will have hand trucks and dollies, woodworking machinery and similar equipment. The addition of jigs to insure accurate assembly of parts, assembly tables for ease of operation, fork-lift trucks, painting equipment and transportation facilities provide the basic means for

larger scale operations than the individual builder would normally find convenient.

#### Applications of Prefabrication

Prefabrication is not limited to the construction of private homes for sale only. It is ideally suited to the development of low-cost rental units such as defense area housing and as such is particularly attractive to government financing.

Its uses for non-dwelling structures are increasingly recognized. Portable and knock-down farm buildings such as corn cribs, sheds, hog houses and chicken houses can be constructed in 12 to 14 hours. With the use of corrugated steel and aluminum, light industrial buildings can be erected successfully by prefabricated methods.



PRODUCTION LINE for roof panels. Plywood sheathing covers the rafters and serves as the base for roofing paper and asphalt shingles which will be applied at the site

#### Construction Methods

Basically, the manner in which prefabrication differs from conventional building procedures is in producing standardized parts, such as a series of room-size sections, which will permit assembly at the site without the need for cutting and shaping operations characteristic of on-site construction. This, of course, requires that the houses must be reduced to a minimum number of different parts, so design is highly important. Each and any part should be adapted for interchanging with others of its particular size and construction so that it will fit into its proper place in any house of like design.

Design systems most commonly used in prefabrication are based on one or more standardized parts of fixed dimensions such as a fixedwidth panel or a series of wall, roof and ceiling sections. The basic unit of most systems is the panel, which consists of both load-bearing and covering materials. It usually also contains insulation and vapor barrier. Provision can be made for the insertion or attachment of windows, doors, electrical conduit, pipe and other accessories at the building site; or else they are installed at the shop. Interior panels if non-load bearing can contain built-in features such as bookcases and cabinets.

#### Roof Design

Some units such as roofs are less adaptable to shop prefabrication in the form of panels than others and therefore rafters and roof boards may be pre-cut for site fabrication. The flat roof and simple gable roof are the most common prefabricated types. Pitched roofs can be designed for partial or complete prefabrication. Usually gable ends are prefabricated in sections for quick assembly at the site.

Design of gable ends is generally a simple matter of plywood or other cheathing fastened to studding with nails or glue. The roof is often of stressed-cover construction. Plywood or other coverage is often fastened to rafters on one side only, and the roofing is applied on the site.

#### Joint Design

Joint design is especially important in prefabrication because it not only affects the strength of such structures but also governs to a great extent the degree to which parts are interchangeable and the ease with which the structure can be erected. Three types of joints are discussed here: (1) those between panels; (2) those connecting the walls and floors to foundations; and (3) those attaching roofs to walls.

(Continued on page 324)

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TOW you can crack the big, profitable low-cost housing market. You'll be able to sell ruggedly-built, handsomely styled homes in the \$7,000 range, practically anywhere with the \$2,750 P & H Enterprise Home.

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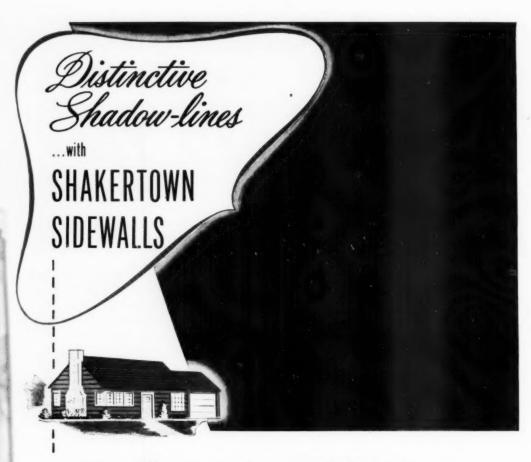


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NEW ALBANY, INDIANA

(Continued from page 320)

(1) Panel Joints-A major problem of joint design is that of concealing the joint lines. This is in no way connected with the strength or durability of the structure but is of great importance from the standpoint of consumer preferences.

Exterior joints can be entirely concealed by attaching finish siding or some other coverage to the plywood or other sheathing at the site, but this increases cost. One treatment is to emphasize the joints with covering strips. A common practice with houses of modern design is to bevel the edges of abutting panels, which results in a V-joint. Interior joints may be similarly treated or covered with wallpaper, or accenting moldings, or insert strips.

The problem of seam treatment at joints is eliminated when roomsize sheets of wallboard are used and rooms are so planned that joints between sections of walls are concealed by intersecting partitions. Conventional moldings are then used to cover corner joints at walls, ceilings and

partitions.

The principal problem, however, is to obtain an effective linkage of the component parts of the walls, partitions, floor, ceiling and roof. Methods include bolted joints between panels and at corners; joint between panels utilizing male and female studs; corner joint with cover of one panel overlapping edge of other; mullion joint; corner joint with mullion; joint consisting of plywood tongue fitted into groove between a pair of studs of opposite panel; spline joint in floor panels.

(2) Joints Between Foundation, Floor and Walls-Joints between roof and walls must of course anchor the entire building. A general practice is to join the floor to the foundation sill, which has been fastened to the foundation and the walls to the

floor

Other techniques used are: recessed foundation sill with wall panel overlap; sill plate bolted to foundation, conventional joist and floor construction, and prefabricated wall panel with base opening for electric wiring; and floor and wall panels clipped to foundation by means of channel fitted with flange for wall support.

(3) Joints Between Roofs and Walls-Joints between roofs and walls must function to resist both lateral and lifting forces such as high winds, and to resist outward thrust, A joint similar to that in the conventional pitched roof framed with rafters and joist can be applied to a prefabricated house. The roof rafters are pre-assembled with plywood coverage



THE SLAB FLOOR FOUNDATION is the prevailing type for prefabricated houses in the lower price brackets, but full basements are often used. The builder prepares the foundation in advance of delivery of the packaged house from the factory

in sections and nailed to the ceiling joists at the building site.

Other methods are: pitched rafter seated in joist and assembly fastened with a single lag screw to panel plate; block joint with lateral thrust exerted against block attached to second-floor panel, which is in turn fastened to top wall plate; truss-type roof; rafter firmly held to joist or lower chord of truss with nail-glued gusset plates and truss fastened to wall plate; and flat roofs consisting of stressed-cover panels which act as box beams.

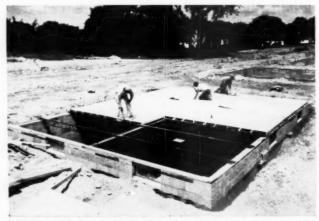
Protection of Exposed Joints-Faulty or insufficiently protected joints at eaves and foundations, around windows and doors, and at other exposed points in the house can cause serious difficulties from moisture entering the structure through them. The use of drip caps, metal

flashing and sloping window sills in window construction is widespread. Millwork with these factors provided for can be purchased ready for installation. Such critical points as the joints at the eaves and the foundations are usually protected with cover boards, flashing, molding, or water

#### Shop Assembly Operations

The basic assembly operations involved in production of panelized construction usually comprise (1) assembly of framework; (2) installation of necessary wiring, framing for fixtures, duct work, water pipes, and similar equipment; (3) attachment of the framing of window and door openings; (4) fixing insulation and

(Continued on page 326)



FINISHING WORK is scheduled as best suits the individual builder's program. This may take as short a time as three weeks



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National Homes prefabricated panels and structural parts are commended by Parents' Magazine as advertised therein,





THE MANUFACTURER'S TRUCK arrives at the foundation at the start of a working day. The first panels are unloaded



CENTER BEARING WALL is in position. First ceiling sections are temporarily located

(Continued from page 324) vapor barriers in place; (5) attachment of cover materials and window and door trim; and (6) painting and other finishing.

Assembly of Framework-Nearly all prefabricators assemble panel frameworks on jigs. The principal factor involved is to match all framing joints as precisely as possible, so that the surfaces to which covers will be attached are in a single plane at all joints. The need for precision varies somewhat with the type of construction. Nailed panelized construction of conventional framing, sheathing, and siding is less critical than. for example, glued stressed-cover construction.

Framing may be assembled with

nails, with corrugated fasteners of the type used in box manufacture, or some other mechanical fastening. Framing joints are rarely glued. For large frameworks of stressed-cover type, nailed joints are advisable to secure adequate strength for handling in further assembly operations.

#### Installation of Equipment

Unless otherwise provided for, all necessary electric wiring, backup plates for switches and other electrical fixtures, furnace ducts, framing for heat registers, water and plumbing pipes, gas lines and similar household equipment must be installed before the covers are attached to the panels. Some prefabricators design their panels so that some of these appurtenances can be installed on the site; for example, using a wall panel with the inner face open at the bottom and with studs bored for electrical conduit so that a baseboard conceals the opening in the finished house.

#### Installation of Doors & Windows

Generally speaking it is a simple matter to attach door and window framing or the complete unit in place in a properly framed panel. A separate jig may be used for each combination of doors and windows, although frequently a single large adjustable jig may be used to assemble sections of various lengths. The guide blocks of the jig automatically position the door or window framing as (Continued on page 328)





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(Continued from page 326) well as the main studs and plates. To this rough framing the finished door and window framing is then attached as in conventional housing; trim, however, generally cannot be installed until the wall covering has been attached.

#### Insulation

Blanket-type insulation is usually installed between studs and joists by stapling with a hand stapler of the type operated with a hammer. The principal precaution necessary is to see that the insulation fits tightly to the frame to prevent heat loss through this seam. Stapling must be secure enough also to prevent sagging of the insulation during the life of the house. Some prefabricators fasten the insulation with wood or heavy fiberboard nailing strips to make a tight joint between insulation and framing.

Rigid fiberboard insulation can be tacked to base strips nailed to studding or inserted in pre-cut grooves in the studding. The latter method is the simpler from the standpoint of assembly.

#### Siding

Siding in prefabrication is attached largely by the same nailing techniques as are followed in conventional site construction. One method combines plywood nail-glued to the framework in the shop with siding applied at the site. This permits use of any exterior coverage by conventional methods, thus effectively concealing panel joints. Interior wall partitions are assembled with nailglued plywood on both sides of framework; floor and ceiling panels may be covered with nail-glued plywood on one side.

#### Attachment of Trim

The final assembly operation preceding application of finishes is usually the application of door, window and other trim. In general this is a simple carpentry operation, and includes puttying and caulking to assure weather-tight joints around wall openings.

#### Painting Operations

Finish painting is done at the site after erection has been completed; the priming coat is applied in the

Rollers suitable for manual operation are faster than brushes but a brush must still be used for trim, sash, doors and moldings. Dipping by dip tank and drain rack for applying wood sealer to prefabricated panels is widely practiced. But since interior and exterior surfaces require different kinds of coatings generally, the

(Continued on page 330)



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#### material specifications

WALLS—Studs, plates, 2x4 16° o.c., single plate both rom, double plate top Insulation, 1/2° enclosed Rock Wool, vapor barrier. Wall panels sheathed with 1/3° Insulite. Sidney paper, 13° a sphalted felt; siding 8° bevel red cedar or equal. Carner braces, let-in, FHA approved.

WINDOWS—Jambs, 2x6 fir. Double hung, installed in wall panels, glazed, weather-stripped. Weatherstripping, zinc or aluminum. Overhead sash balances.

PARTITIONS—Precut 2x4 studding, fir, 16" o.c. Non-bearing, for rock lath or drywall. Random 2x4 and 4x4 supplied for double plate and door headers

ROOF—Trussed-roof construction. Fir 2x4 with ½" plywood gussets notified over joints. Easy cornice installation. Sheathing, 1x6 boards. Underlay, felt 15" asphalt impregnated. Shingles, 210: Gables, prefabricated V-joint T&G panels, screened latures. Ceiling insulation, 24" blanket with vapor barrier.

DOORS—Interior, 134" birch, flush. Exterior, rtar, 134" sash type, glazed; frant, 134" birch flush type. Front and rear doors equipped with hardware. Frames, 2x6 rabbetted fir or pine, precut, packaged.

FLOORS—Material supplied, 1x6 boards. Precut bridging, 2x8 or 2x10 joists, 2x8 or 2x10 material for box sill, 1x10 or 1x12 pine apron material, drip cap, beam material, nails.

INTERIOR TRIM—Each window, precut and bundled; each door, precut and bundled. Base and shoe or combination base and shoe, pine.

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INTERIOR WALL FINISH—For plastering, ¾" or ½" rock lath; for drywall, ½" gypsum board, 4x8' up to 4x12' sizes. Joint tape, compound, 5 D cement coated nails with gypsum board.

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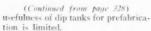
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#### Transportation to Site

Prefabricated house parts are commonly transported to the site by trucks which are designed and fitted for safe loading of large structural units. Two types of loading are used: racking and stacking.

Racking consists of loading panels vertically, bottom edges seated between blocks fixed to the truck floor. Stacking consists of flat piling. Both trucking and storage require that adequate safeguards be employed to prevent deforming panel edges by rough treatment or exposure and damage to joints.

#### Storage

Planning to deliver parts at the building site the morning that the shell is to be erected usually eliminates the need for site storage facilities since millwork and other interior parts can be stored in the house itself,



RAISING THE ROOF. Peak formed by two sections placed together. Gable ends are then hoisted into place

For large volume construction, schedules should be planned well in advance so that as parts for a house arrive, its foundation and sub-floor are in place and walls and roof can be erected during a single workday.

#### Site Assembly

This has been preceded by preparation of the foundation, and generally consists of erection of wall, ceiling and roof panels, together with interior partitions; all interior and exterior finish; application of roofing; installation of electrical, plumbing, heating and other fixtures; painting and other finishing.

Foundation construction for prefabricated house differs in no important respect from that for comparable conventional houses. The materials and building methods are the same, and design dimensions, such as thickness of walls and width of footings, are frequently prescribed by local building codes.

#### Erection Procedures

Most prefabricators plan their assembly operations to get the outer shell under roof in a day or less. Everything that will contribute to speedy shell assembly, including the laying of base plates for wall panels, should be done beforehand to help speed shell erection. All equipment needed to move and lift panels into



BY THE END of the first day, the house is roughed in and under roof

place and fasten them together should be at the site, ready for use. Careful planning of details, from the loading of the truck at the shop so as to permit unloading of panels in the order needed, to an orderly plan of erection of panels in sequence is strongly advised by experienced builders.

All parts can be numbered in sequence of erection and such numbers clearly stenciled before leaving the shop so that loading will follow an orderly pattern and confusion on the site be avoided.

#### Sequence of Operations

This will depend somewhat on the type of house. A typical system, however, is to back up the truck-load of "packaged" materials to one corner of the building foundation. Erection of corner wall panels may begin at the diagonally opposite corner. Interior partition panels are set up as erection of the outer walls reaches the point at which these panels are connected to them. When all wall and partition panels are in place except those at the corner where the truck stands, ceiling panels are next unloaded and attached to the walls and partitions.

Again, when the laying of ceiling panels has reached the corner of the building where the truck stands, roof panels are unloaded and laid on top of the ceiling panels in the order in which they will be erected. The gable end on the far side of the building may then be lifted in place, and the process of assembling roof panels begins, once more moving toward the end of the building where the truck

The final wall panels in the unenclosed corner of the building are not erected until all ceiling and roof panels have been at least laid in place; in the meantime, flooring, trim and other finishing materials have been moved into the house and piled where they will be conveniently available and out of the way of other crection steps.

This sequence is, of course, varied



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to fit particular requirements of building design. It may be that the gable ends are so prefabricated that their installation logically follows that of the roof panels; and if in the interest of greater variety of house design some combination of prefabricated sections and conventional construction is adopted, the builder may use conventional construction for roofs. Then the erection of prefabricated walls and ceilings for each house is carried out much as described above.

With some types of panelized construction, builders find it convenient to position wall and partition panels temporarily with bracing until the entire shell can be permanently tied together. This method permits adjusting wall and ceiling panels more readily for exact fit at joints with roof sections, trusses, or rafters. Bracing may also be necessary to hold the first panels in place when shell erection begins, at least until enough wall and ceiling panels are up to afford the necessary rigidity without bracing.

#### Assembling of Panels

The ease with which panels are jointed together at the building site, assuming that they are initially properly designed, will depend principally upon the care exercised in handling and shipping. Panel joints of the tongue-andgroove type are especially susceptible to damage by rough handling and exposure to moisture for prolonged periods of time.

On the other hand, if well designed with beveled edges and proper tolerances, and protected with skid strips against damage in handling, assembly is simple. Various devices can be used—interior partitions, for example, can be moved into position on a dolly. Joints between panels are usually caulked either before or after assembly.

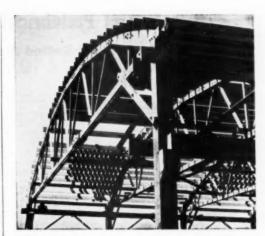
#### Metal Prefabrication

While wood frame and plywood are perhaps the most commonly used materials in prefabricated houses, aluminum, steel and concrete are also adaptable. Strip steel framing members of about 12 to 16-gauge are increasing in use. Light in weight, easy to handle, they do not require any special tools and are often designed for the attachment of other materials by means of nails. In lower-cost basementless construction, provision can be made when pouring first floor slab and foundation walls for anchoring steel plate by means of anchor bolts placed in the concrete or masonry. Holes are factory-punched in the steel plate to receive anchor bolts.

Strip steel frames used in wall construction consist of framing and bracing members welded together to form rectangular sections, which, when bolted together at the site, act as a complete wall frame.

Frameless steel construction consists of panels fabricated of a series of cells or large sheets. These cellular panels have long been used for sub-floors but now have been adapted for bearing wall construction and for floors so that framing is not required. These panels are used either as exterior or interior surfaces, finished except for painting.

Steel walls and roofs require backing with insulating materials to retard heat conduction and also air space between the metal and insulation to take care of possible condensation within the wall.



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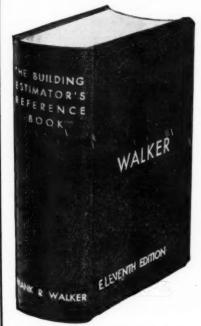
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THE requirements for adequate plumbing in a house will vary. A two or three person family can get along very well with one bathroom. Larger families, or people who do much entertaining, will find that two baths, or a bath and powder room combination are not merely desirable but necessary.

Minimum needs require a bathroom with tub and shower facilities, a kitchen sink, laundry facilities, and at least one outside hose connection. Only in the lowest-cost homes should the kitchen sink and laundry facilities be combined, or should the tub and shower combination be replaced by a shower only.

If there is one bathroom in the house, it should be placed so as to be accessible but not conspicuous. It should be possible to get to the bath without going through other rooms such as a bedroom. Avoid placing the bathroom door so there is a direct view from the living area into the bath.

In one-bathroom houses, a good arrangement is to place the tub in one compartment and the toilet and lavatory in an adjoining one, thus permitting double use of the room.

#### Installation Economies

For most economical installation, rooms having plumbing should be placed close together to avoid long runs of pipe. In a one-story house, the bathroom can be placed next to the kitchen or utility room. In a two-story house, the bath can be placed over the powder room, and the kitchen over the laundry and basement toilet.

The popular ranch-type of house

commonly has the kitchen and utility room at one end or at the center of the house, and the bath at the other end. In such cases, kitchen and utility room should have a common wall, as should the bath and powder room.

### Provision for Future Changes or Additions

In many instances, owners will feel that powder rooms, basement toilets, or even additional baths may be added later. If such future fixtures are "roughed in"—drain and water piping installed in the walls—the only future cost will be for fixtures and setting, and the expense of tearing out walls will be avoided.

#### Water Supplies

The water-supply system should deliver water to the fixtures at the rate it is needed. Water pressure, pipe size, the number of fixtures in use at any one time—all are factors in determining the water needed.

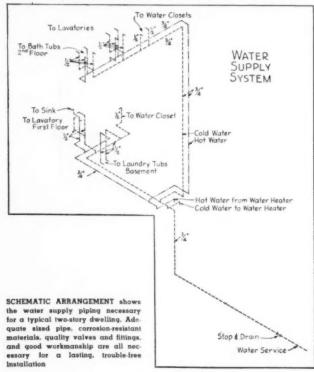
Water is brought into the house from the city main or well, in underground pipes, to prevent freezing and to protect the pipes. A 1-inch galvanized or lead pipe, or 3/4-inch to 1-inch copper tubing will usually provide adequate water under normal city pressure of 30-50 lbs. In cities, a "roundway" will be provided at the property line, at which the water may be shut off by a key passing down through a metal or fibre tube extending up to ground level. A shut-off valve must also be provided inside the foundation wall or in the utility room. The meter, if used, is installed at this point.

Water-supply piping inside the house may be of galvanized iron,





WATER SUPPLY PIPING for tub and shower, lavatory, and closet are shown "roughed in" in the partition. Copper tubing is used for water supply, waste and vent lines



copper tubing, or brass pipe. Galvanized pipe is the most common; connections are made with standard tapered threads and fittings. Certain types of water may attack galvanized pipe over a period of years. Brass pipe, which is resistant to corrosion, is installed with screw threads and fittings. This makes an excellent installation but is expensive. Copper tubing is increasing in popularity for water supplies. Connections to fittings are made with swedged or soldered joints, with screw-type fittings for connections to fixtures.

Access panels should be provided at the supply end of bathtubs, and other valves should be located in relatively accessible locations in case repairs are necessary. Air chambers should be provided for all fixtures to prevent "water hammer" when valves are suddenly closed. All piping should be at a slight pitch to permit draining down of the system to a low point if ever necessary.

#### Drainage System

Water is forced through the supply pipes by pressure, but drainage of wastes is by gravity. Therefore, all drainage lines must have a pitch to insure proper flow so that wastes are carried out to the street or septic tank. Traps must be provided at all fixtures to prevent sewer gases from getting into the house. These should be accessible for cleaning if necessary. Waste lines must be vented to equalize air pressure throughout the system to avoid siphonage of traps. In climates subject to freezing, the vent stack or stacks extending through the roof must be increased to prevent hoar frost from stopping the vent, which could permit siphonage of traps.

Some plumbing codes require that kitchen and laundry wastes be passed through a grease interceptor or catch basin to separate out grease and oil. If this is required, separate waste lines must be provided.

Downspouts may be connected to the city sewer, or to a separate storm sewer, which reduces the possibility of water backing up in periods of heavy rainfall. If a common sewer is used for wastes and rain water, the connection of the downspouts to the city sewer should be made beyond the catch basin, and beyond a back-water valve, if this is used to keep water out of the basement. In extreme cases, it may be necessary to install a sump and sump pump to handle the problem of water backing up to basements because the sewers are too high in the street, or because of insufficient capa-

Clean-out plugs should be provided at proper points in the system. Special drainage-type fittings should be used throughout to prevent waste material from accumulating.

Materials for the drainage system are often specified by local plumbing codes. The commonly used materials for house sewers outside the house are clay tile, fibre or concrete pipe, and cast iron. Tile is cheapest and most easily installed, but may crack with settling of the ground, permitting roots to get in the pipe and obstruct the flow. Cast iron is most expensive, but is permanent and trouble free.

Inside the house, piping for drainage may be of cast iron, clay tile, or fibre pipe for subfloor sewers, and of cast iron, galvanized steel or wrought iron, or copper, brass, or lead for above-ground piping. Cast iron is most commonly used for 3-inch and 4-inch lines handling toilet wastes, while smaller sizes are galvanized pipe or cast iron.

#### Bathroom Fixtures

Bathtubs are made either of cast iron or pressed steel, having a hard coating of porcelain enamel which is resistant to abrasion and corrosion. Present style is for an apron tub, having a skirt extending to the floor on all exposed sides and end. A roll rim, single-shell type of tub is made for economy installations, and is a great improvement over the old footed tubs. A great variety of styles are made; corner, recess, square, with or without seats, and either white or numerous colors. The 5-foot length of



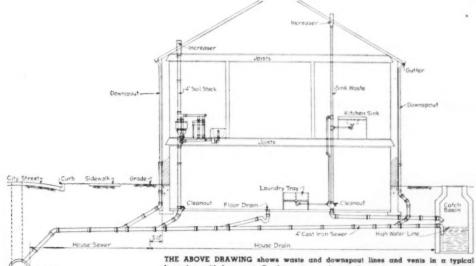
VITRIFIED CLAY TILE is extensively used for underground sewage lines. Connections are shown leading from both the house sewer and a catch basin to a septic tank

tub is usual, although 4½- and 5½foot tubs are made. The square tubs
occupy a 4-foot square space, and
solve many otherwise difficult space
problems. A special receptor type of
tub permits either showers or sitdown baths and occupies a space only
42 by 31 inches. When used with a
corner lavatory, bathrooms can be fited into a space as small as 6 by 5 feet.
However, most building codes specify

minimum room areas, including bath-

Cast iron tubs are supported at the back of the tub by 2 by 4's nailed to the studs, or by special hangers. The tub apron supports the front, and wedges are placed under the tub body to keep it from shifting. Pressed steel tubs bust be set in sand or grout or supported otherwise.

Designs of modern bathtubs reflect



bungalow with basement. Good practices to be noted are the provision of cleanouts at basement floor level for waste lines; increasers at roof for vent stacks; correct venting of all fixtures

	IS YOUR LOCAL PLUMBING CODE ADEQUATES— The filtering check for is based on the soblewes requirements for good physically formed and by the Uniform Manhing Code Constition, which is made up of regressantly less of the Nutional Association of Manter Manhors, Conference of Jose Sentery Registering, 8-Milling Observations (Milling Observations) (Milling Observations)	Vour code			
	DOES YOUR CODE REQUIRE	yes	in part	no	
1	Adequate supply of pure water for human use, free from possible contamination at all times				
2	Piping of durable material of sufficient size to supply water at an adequate rate for use		-		
3	Connection to public sewer, septic tank, or other approved sewage disposal and treatment				
4	Minimum fixtures: water closet and kitchen type sink for dwellings; water closet and one fixture for cleaning purposes in non-residence structures				
5	Proper design and installation of drainage system, with adequate provision for clean outs				
6	Fixtures of suitable design to guard against fouling and back-siphonage, of smooth, non-absorbent material				
7	A water seal trap for each fixture directly connected to the drainage system				
8	Vents for fixtures to provide air in pipes with no danger of siphonage, forcing of trap seals, or aspiration under ordinary use				
9	Vent terminals above the roof line, with increasers to prevent hoar frost or draining of roof water, away from doors and windows				
10	-Protection against back flow of sewage				
11	Keeping clogging, deleterious, or explosive materials or substances out of the drainage system				
12	Suitable testing and inspection of plumbing installations				
13	Protection of hot water heating units against over heating, excess pressure, fuel leakage				
14	Adequate lighting and ventilation of rooms having plumbing fixtures				
15	Maintaining of plumbing and sewage disposal systems in a serviceable and sanitary condition				
16	Arrangement of plumbing fixtures to be reasonably accessible in ordinary use				
17	Installation of fixtures not to weaken structure of building or damage walls, floors, etc. in ordinary use				

# STYLE

Style has a definite place in today's bathroom design—for the bathroom accessories you choose today will do much to determine the appearance and convenience of your bathroom for years to come.

This new Crystalcrome towel ring is the latest addition to Hall-Mack's Crystalcrome line of bathroom accessories—and it combines sparkling beauty and sensible utility in a new styling that adds a dramatic touch to bathrooms.

The large stirrup-type towel ring is made of solid, crystal clear Lucite which will not break or discolor—and has a chrome plated base. Two rings—fastened to the wall or door—a "Mr." and "Mrs." pair—will add beauty and convenience to any bathroom.

This is but another example of Hall-Mack quality—expressed "STYLE"—another reason why Hall-Mack is the only answer to Quality Bathroom Accessories.



nized as "the best answer to quality bathroom accessories"—for it means quality materials and fine construction—it means that the accessories you choose will have lasting style and enduring beauty—it means that whatever your taste, whatever your budget—Hall-Mack has the right accessory to supply every bathroom need.

Within four popular lines—Crystalcrome, Coronado, Tempo and China-Vogue—you can select Hall-Mack accessories for every bathroom style and budget!

#### HALL-MACK COMPANY

1344 W. Washington Blvd., Los Angeles 7, California 7455 Exchange Ave., Chicago 49, Illinois



the constant striving of the industry for the last word in safety, durability, and appearance. Today's tubs have broad, low, flat rims, so that toilet articles may be placed on the rim near the wall. Bathers may sit or dress on the wide outer rim of the tub. Flat, non-skid bottoms prevent falls while bathing.

#### Lavatories

Lavatories are of two general types: the flat-top style, having the faucets on the same level as the rim of the fixture; and the shelf-back model, having the supply valves on an inclined or vertical ledge. The flat-top style is most economical. Set about two inches away from the wall, it permits cleaning behind it, but the wall should be waterproofed against plaster damage. A variation has the faucets at malevel, but a straight back fitting against the wall for protection.

Ledge or shelf lavatories have space for toilet articles. This style lends itself well to a mirror installation which comes down flush with the back of the fixture.

Lavatories may either be wall hung or supported on legs. In either case, blocking must be built into the wall to anchor the unit. Special brackets give support to wall-hung fixtures, while chrome-plated legs combined with towel bars give graceful support at the front for other styles.

A new development in hathroom styling is the countertop lavatory. These are designed to fit into a countertop of linoleum, glass, laminated plastic, or other materials. Such an installation makes possible combining two lavatories in one counter top for greater utility; also, a dressing table may be added. Extra storage space or hampers below the counter are also a possibility.

Size of lavatories range from 18 by



GRACEFUL CHROME LEGS and wide shelf spaces are featured in this lavatory. Trap is of type readily disassembled



TWO LAVATORIES are set into the continuous curved shelf which also serves as a vanity table. Door at right leads to separate compartment for shower and toilet. Glass panels and fluorescent lighting provide correct illumination and point up modern decor

15 inches up to 28 by 22 inches and larger. Corner lavatories save space in small bathrooms. Small dental lavatories, set a little higher than the regular hasin, are recommended by health authorities, and reduce bathroom congestion while taking little additional space.

Faucets are usually supplied with the lavatory. The discharge spout should be at least one inch above the rim to prevent back siphonage. The center discharge type of spout is preferred so that water of the correct temperature may be run for washing. A stop or shut-off valve at the wall under the lavatory regulates the maximum stream, and permits replacement of faucet washers without shutting off the water for the rest of the house. All good quality faucets have heavy chrome plate over brass bodies. Only faucets which permit replacement of all wearing parts should be installed.

Standard 1/4-inch "P" traps connect the lavatory to the wall. New designs minimize stoppages, and permit easy removal and replacement for cleaning. Polished or satin chrome plating adds to the appearance of the unit.

#### Toilets

Three major types of water closets are in common use; the siphon jet, the reverse trap, and the washdown. The washdown costs the least and the siphon jet is the most expensive. The latter is preferred because it has a deeper water seal, a larger trapway, a more positive flushing action, and a much larger water area. The modern styling of siphon jet bowls adds to the appearance of the bathroom in which they are installed.

The reverse trap bowl, considered

a "best buy" in the trade, is the largest selling closet. It has a minimum water seal of  $2\frac{1}{2}$  inches, rim and jet flushing action, but is not so positive or quiet as the siphon jet.

Any of these types of closet bowls may be used with any type of tank; one-piece, close coupled, or regular wall-hung tanks. The washdown closet, for economy, is made only with wall-hung tanks, but the siphon jet and reverse flush bowls may be made also with close coupled or integral tanks. The close coupled tank generally sets away from the wall and is bolted to the bowl. The integral tank is cast in one piece with the bowl. Both of these are very popular; it is estimated that 70 to 80 per cent of the closets sold today are of the close coupled design.

Flush valves differ from water closet tanks in that the water for flushing is supplied directly from the main, no storage tank being necessary. The flushing action is positive and direct. The flush valve may be adjusted for the volume of water supplied and the duration of the flushing flow. Since no tank is needed, installation is more compact, and these valves are reliable and efficient in operation. Because of the fact that a one-inch supply pipe and good pressure are required for operation, this type of valve is not ordinarily used in home construction.

Closet seats are usually of plastic or plastic coated wood. Painted wood can be used for low-cost installations.

#### Showers

An overhead shower will almost always be installed over the tub. The water and drain are there, and the additional cost of a diverter tub filler and shower head are negligible compared to the convenience of a built-in shower.

Separate shower units may also be installed in a second bathroom, or in the basement powder room. Built-in shower cabinets are available in a



THE ONE-PIECE CLOSET and tank unit above requires no wall support. This siphon jet model is quiet in operation

# CRANE'S FAMILY "T"

A practical idea for bathrooms. that can be adapted in many ways



The "T" Bathroom features decorative woods, cork floors and grass-cloth wall in the dressing-table area, with bathing and toilet fixtures from Crane's Criterion group.

Here is an example of another Crane service to home builders.

A simple "T" shape partition turns the trick-divides this bathroom into three sections to give 3 bathrooms in 1! All the facilities of the bathroom may be used simultaneously by different members of the family, because sliding doors provide privacy for each section.

The flexible Family "T" bathroom is one of forty-eight rooms in the new Crane "Sketch Book of Ideas," an important part of Crane's new service to builders. This remarkable book can be used to help prospective home owners visualize and select new arrangements for bathrooms, kitchens and utility rooms.

In addition, information on room arrangements and decorations is available.

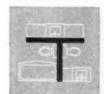
Ask your Crane Branch or Crane Wholesaler for complete details. Crane Co., General Offices: 836 South Michigan Avenue, Chicago 5, Illinois.



Another variation separates the lavatories.



The "T" plan with a single lavatory.



closets in this "T" plan. separate lavatories.



Two compartments with Another way to provide

COME TO CRANE FOR IDEAS

**APRIL 1952** 



PREFABRICATED SHOWER STALL and receptor units may be shipped cheaply in knocked-down form and easily assembled on the job

variety of sizes from as small as 32 by 32 inches. Prefabricated shower units consist of a concrete or metal receptor which is waterproof and does not require a lead pan or membrane, and metal enameled walls. These are shipped knocked down and may be assembled and waterproofed on the job.

Built-on-the-job showers may be of ceramic or other tile, and require lead pans and waterproofing of walls. Additional support is also necessary to handle the extra weight imposed by these materials.

Shower valves may be part of the tub installation, where the diverter mixer faucet also controls the shower; a simple two-valve set-up leading to the shower head; a mixing valve, where one valve controls both the hot and cold water, or a thermostatic unit incorporating a mixing valve plus automatic temperature adjustment when the flow of either hot or cold water is changed by water demand elsewhere in the house.

Shower doors, both for privacy and keeping the bathroom floor dry, are available in a wide range of styles, degrees of ornamentation, and prices. Stainless steel and etched or frosted glass are typical materials, and an attractive shower door can contribute much to the beauty of a bathroom.



A DECORATIVE CAST TERRAZZO RE-CEPTOR and glass door are features of this shower unit for corner installations

#### Cabinets and Accessories

The medicine cabinet over the lavatory, standard for years, has developed into a wide variety of bathroom storage units. Cabinets for toilet articles are larger, have bigger and better mirrors, and are also usually fitted with lights for shaving or makenpe. Both wood and metal constructions are used. Built-in holders for



FLUORESCENT LIGHTS at the sides, an interior light with door-operated switch, toothbrush rack and razor blade disposal slot are features of the modern medicine chest in metal

tooth brushes, shaving accessories and razor-blade disposers are common, and one unit even features a locked compartment for dangerous medicines in households having small children.

Additional storage space for towels, linens, cleaning articles, etc., is provided by built-in and under-the-lavatory cabinets. An interesting arrangement is the installation of doors on both bedroom and bathroom sides of the cabinet, permitting access from either room.

Bathroom cabinets and storage units other than medicine cabinets are available in wood and metal units for custom installations. Basic units may be combined according to space requirements. Built-to-order drawer and cabinet facilities are combined with counter-type lavatories and laminated plastic tops to combine space saving, smartness and luxury limited only by the owner's purse and the architect's imagination.

Towel racks, soap dishes, paper holders and other accessories are occasionally of ceramic tile but more commonly are chrome-plated brass. Recessing of such units into the walls adds smartness.

Separate bathroom heating units may be installed for taking the chill off the room on cold mornings. A recent development is the use of electrically heated radiant glass panels, which are decorative as well as mactical.

Reduction of bathroom noise should



THE POLISHED CHROME HOLDER shown above combines toilet paper holder, magazine rack, ash tray, and shelves for other articles to provide the ultimate in convenience.

be given consideration. The sound of the bathtub baritone, the flushing toilet, and the gurgling faucet may be minimized in a number of ways. Quiet-flush closets of the siphon jet type are more efficient than others, and cost only slightly more. The bathroom may be flanked by closets to provide dead-air space. Acoustical tile may be applied to the ceiling for sound absorption. The bathroom or powder room should open onto a hallway, rather than a room for use, and this will help in minimizing sounds. Air chambers should be installed in all fixtures to eliminate water hammer, and all piping should be of correct size, properly supported to prevent noises from the water supply.

Good bathroom design will naturally indicate the use of materials for floor and wall coverings suitable to the location. Floors and wall coverings adjoining lavatories, tubs, and showers should be resistant to water and steam. Asphalt, rubber, ceramic, and metal tile all add beauty and durability while providing protection. All surfaces should be easily cleaned. Modern design favors the liberal use of glass and glass products such as structural glass and glass block.



FOR DE LUXE INSTALLATIONS, cast terrazzo receptors may be combined with plastic or clay tile in built-in showers



Shelf-back lavatory, porcelain-on-steel Model L-2018 has a bowl of generous capacity with a deep apron at front and sides that creates an unusual smartness in style. May be wall-hung or installed with legs as illustrated.

AllianceWare porcelain-on-steel BA5 bathtub combines three important selling features—(1) an attractive panelled front (2) a wide seat with roll-rim and (3) a convenient height of 15 ½ inches.

For details of these AllianceWare units, write for complete specification sheets.





Close coupled reverse trap closet combination in a smartly-styled unit. The design incorporates quiet, efficient, whirlpool jet flushing.

W/ITH the recent addition of vitreous china closet combinations of recognized quality to the AllianceWare line, you can now install a complete AllianceWare bathroom in any of four decorator color selections—blue, pink, green, and suntan—as well as white.

With stainproof surfaces, modern styling and choice of units matched in color, AllianceWare also possesses practical details of construction and ease of installation that win the praise of architects and builders everywhere. Builders who plan quality homes of long-lasting attractiveness find AllianceWare fixtures offer both builder satisfaction and owner satisfaction.

ALLIANCEWARE, INC. • Alliance, Ohio
Bathtubs • Lavatories • Toilet Combinations • Sinks

Alliance Ware



## **BERMICO**®

The Root-Proof Pipe For Outdoor, Underground, Non-Pressure Use

#### "In Big Demand!"

Bermico is a real money-maker. It is easy to stock and stack. Its fibrous, pitch-impregnated construction enables it to absorb jars and jolts without damage. It is a profitable, fast-selling pipe that turns over quickly.

#### "Handles Like A Dream!"

Bermico pipe is a cinch to install. Its convenient, 8-foot lengths, complete line of bends and couplings, and simplicity of assembly, make installation quick and easy. A few hammer taps seal joints tight—no joining compound is needed.

#### "No More Pipe Troubles!"

Users are delighted with Bermico's dependable, trouble-free service. It is corrosion-proof, unaffected by soil settlement, and is ideal for house-tosewer connections, septic tank disposal units, downspouting and farm drainage.

Write Dept. HB-4 at our Boston office for information

## BROWN

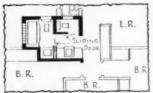


COMPANY, Berlin, New Hampshire CORPORATION, La Tuque, Quebec

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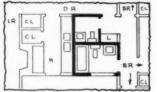
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(Continued from page 342)



THREE PERSONS can
use this five-fixture
bathroom at the same
time because of partitions and sliding
doors. Under-vanity
area provides inbathroom storage

ALL PLUMBING FOR BATHROOM, powder room and kitchen is concentrated back-toback for economy. Net result here is bath and a half at small extra cost



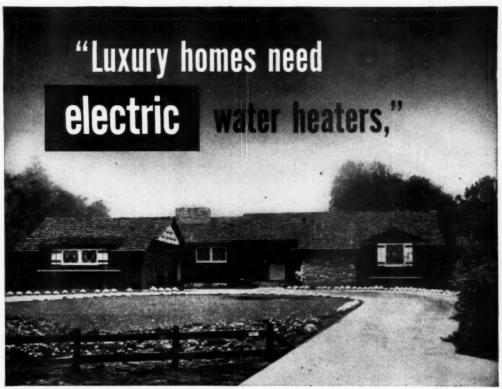


DIVISION OF THIS BATHROOM with a sliding door and installation of two lavatories provides a separate powder room. Glass block separates vanity, tub



LOCATION OF THE POWDER ROOM directly below the bath economically permits both closets to use one stack

(Plumbing Fixtures, etc. Continue on Page 348)



These rambling, farmhouse style homes, built by Mr. Robert Stewert in Encino, California, are in the \$35,000 to \$50,000 price class.

To shorten hot water lines, one of the two Electric Water Heaters is located in a corner of the garage.

## SAYS CALIFORNIA BUILDER ROBERT STEWERT



"The people who buy my homes want luxurious but informal living," says Mr. Stewert. "That's why I usually include two Electric Water Heaters in each house. They not only provide automatic hot water and plenty of it—but I can install them efficiently, to avoid long pipe runs and insure economical operation. I'm able to do this because the Electric Water Heater has no flue or vent, and can be installed anywhere. Other features which customers like are the cleanness and long life of the Electric Water Heater. It provides the kind of service demanded today not only in upper-bracket homes, but in every type of home."

# electric water heaters

THEY'RE WHAT

ELECTRIC WATER HEATER SECTION National Electrical Manufacturers Association 155 East 44th Street, New York 17, N. Y. ALLCRAFY - BAUER - BRADFORD - CRANK-LINE SELECTRIC - CROSLEY - DEEPFREEZE FAIRBANKS-MORSE - FOWLER - FRIGIDAIRE - GENERAL ELECTRIC - HOTFORN - HOTFORN A JOHN WOOD - KELVINATOR - LAWSON - MERTLAND - MONAECH - NORGE - PEMCO - REX RHEEM - SEPCO - A. O. SMITH - THERMOGRAY - TOASTMASTER - UNIVERSAL - WESKI - WESTINGHOUSE

# RHEEM

PRESSURE-

\*The inner tank of every Rheem Water Heater is fully tested at a water pressure twice as great as ever needed for normal use. It has to be perfect before it leaves the factory!

RHEEM Imperial



RHEEM CUSTOM

RHEEM Standard



## A COMPLETE SELECTION OF WATER HEATERS FOR THE HOMES YOU ARE BUILDING

What type of water heaters do you want for the homes you are building? Gas, electric or oil? What capacities? 20, 30, 40 or 100 gallons? An upright or a table-top electric? The finest quality Rheem Imperial with a 10year warranty, a Rheem Standard or the Rheem Custom with a five-year warranty? Rheem has them all!

And Rheem has the national sales and service organization to make Rheem warranties mean everything they say! Rheem is in business to stay.

No other manufacturer offers such a wide selecti models. No other manufactures offers much high qu at such low prices. And Rheem's largehitting national advertising-built around the Proved theme-makes Rheem a name that acceptable to new home prospects. Rhous re plus value that will help ninke your homes easie See your Rheem Contractor NOW! Get the con story on why Rheem is the best boy for builders!

RHEEM MANUFACTURING COMPANY, General Sales Offices, 570 Lexington Avenue, M. Y. N. Manufacturing Plants in 22 Cities Around the World



RHEEM Imperial

RHEEM Booster

RHEEM Large Capacity

ABLE TUP SERIES BY FLECTER

NCCM World's Largest Manufacturer of Automatic Water Heaters

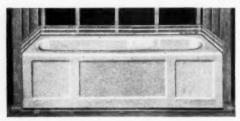
#### LUCKE LEAK-PROOF BATH-TUB HANGER

For Housing For Hospitals For Homes

Specify LUCKE

Leak-Proof Bath-Tub Hangers

No Leaks • No Cracks • No Repair Expenses



#### Outstanding Features

- 1 Bolts in hanger where necessary.
- Filler to seal joints against leaks.
- 3 Two nails, screws or bolts at every stud.
- 4 Filler in groove between tub and Hanger.
- 5 Perforations as a base for wall materials.

## The Modern Way To Prevent Leaks

For Trouble-Free Bath Tub Edges

There is no excuse for cracks or leaks or repair expense in good building. LUCKE Bathtub Hangers are specified and used by leading architects and builders to overcome this problem. Lucke Hangers build tubs into walls. Tub rests securely in hanger along each wall.

Sold by Leading Plumbing Supply Houses

Manufactured by

## W. B. LUCKE, Inc.

Wilmette, Illinoi





(Continued from page 344)

#### Kitchen and Utility Fixtures-

Modern sinks range in size generally from 42 to 96 inches in length, and have more than ample workroom if their size is chosen according to the family's needs. It is desirable to install the two-drainboard sink if space permits. The double bowl sink, having separate compartments for dishwashing and rinsing is preferred by housewives.



DOUBLE COMPARTMENT SINK makes for efficiency in dishwashing. Spray attachment shown in use facilitates removal of food wastes from plates and rinsing after washing

Sinks are typically of porcelain enameled steel or cast iron, but may also be of stainless steel. Stainless steel is more subject to scratching by abrasive cleaners than is porcelain, but makes a beautiful appearance if properly cared for and will not chip from impact.

Drainboard sinks may be obtained in widths of 42, 48, 54, 60, and 66 inches. For sinks built into a counter top, a 24 by 21-inch bowl is about minimum, while a 30 by 21-inch size gives better work room. Doublecompartment sinks for counter top installation are in 32 by 21-inch and 42 by 21-inch sizes. Cabinet bases of wood or metal can be had for sink installations in lengths of from 42 up to 144 inches, Longer units include cupboards or drawers in addition to under-sink compartments. Special brackets and drip mouldings are available for mounting sink bowl units in any type of custom-built counter

Individual sink cabinets are supplied by manufacturers in both single and double drainboard, single and double bowl styles, to match and harmonize with other cabinet and counter installations.

Sinks which do not have garbage (Continued on page 350)

## NEW STANDISH SHOWER BATH

42" x 36"



Kohler Standish enameled iron recess shower bath, K-306-F.

### for homes, apartments, hotels, motor courts



Here is a space-conserving bath, practical for the needs of an entire family. Wider than the average bath, with flat bottom, it is roomy for showering and suitable for adult tub bathing. The low front makes it especially useful as a child's bath.

The Standish is 42" long, 36" wide at the center, 34" wide at the ends, 14" high. Standing area at the bottom is approximately 35" x 26". The bench rim is 5" wide.

The Standish matches the popular Kohler Cosmopolitan. The lustrous enamel is fused to non-flexing iron cast for strength and rigidity. The combination fitting with Niedecken Mixer is chromium-plated, affords easy control of water temperature.

Kohler Co., Kohler, Wisconsin. Established 1873

## KOHLER OF KOHLER

PLUMBING FIXTURES . HEATING EQUIPMENT . ELECTRIC PLANTS . AIR-COOLED ENGINES . PRECISION CONTROLS



F&W Pump Interchangeable from Shallow to Deep Well

F & W Means Flowing Water by
FLINT & WALLING MANUFACTURING CO., INC.
466 Oak Street, Kendallville, Indiana



F & W MULTI-STAGE
Deep-Well Jet
Delivers extra capacity.
New automatic control
valve assures extra per-



F&W VARIJET Shaltow Well Pump Pumps 40 to 70% more water, yet reduces power consumption. An exclusive F & W patent!



Farm-Used, Farm-Proved for 86 Years

(Continued from page 348) disposal units built in should have drain openings of a size which will permit later installation of disposal unit. Minimum opening is 3½ inches, with a 4-inch opening more generally used. Some disposal units require a 5½-inch opening. Electrical roughing-in should be provided initially for future garbage and dishwasher

Additional material on sinks is contained in the section on "Kitchen Equipment and Home Appliances."

#### Laundry Trays

installations.

Although there are available combination sink and laundry tray units which have two compartments, one for dishwashing and a larger one for laundry use, these are recommended only for reasons of greatest economy or space saving. Typically, a laundry tray will be provided in the basement or utility room, together with water heater and water softener in localities having hard water conditions.

Laundry trays are made of enameled cast iron, earthenware, or cement composition. One, two, or three compartments are supplied, with single compartment units being especially suited to installations in conjunction with automatic units.



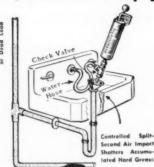
WATER SOFTENERS soon pay for their initial costs in savings on scap and clothes. The unit above is completely automatic. and requires only a few minutes for regeneration

#### Water Softeners

Water softener units are a necessity in many areas. Any water having more than three grains of mineral salts per gallon is considered hard enough to require softening. A softener is an added sales feature for a home, and will soon pay for itself in savings. It is estimated that clothes (Continued on page 334)

## Cleans Pipes, Drains, Sewers Simply

## HYDRAULIC WATER RAM



Good news for every maintenance man and operator. Positive sanitary maintenance with this modern plumbing tool. No rods, no electric cables, no chemicals. Clears the toughest sewer, hardest sticky sink line, toilet. Clears them CLEAN IN MINUTES. Eliminates rust, corrosion in hot water faucets, coils, etc. Restores pressure without disturbing faucets or risers. GET THE FACTS concerning this simple, scientific principle of hydro statics.

# THE HYDRAULIC MFG. CO.

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#### BRIGGS VITREOUS CHINA FIXTURES ARE TOPS FOR QUALITY, TOO!





Like the famous formed steel fixtures, Briggs Beautyware vitreous china lavatories and closets are products of the finest craftsmanship and designing skill to be found in the plumbing ware industry. The permanent luster and attractive pastel colors of sparkling Briggs Beautyware are well known among builders alert to the advantages of modern materials and methods.

It's the "something extra" in Briggs Beautyware formed steel plumbing fixtures that means plus value to home buyers! They'll be impressed, of course, by the striking modern lines and stunning decorator colors of this superb plumbing ware when first they see it. But there's extra quality in Briggs Beautyware that isn't visible at a glance-extra quality that assures modern home owners of beauty and satisfaction that won't wear off.

For Briggs gives them a special acid-resistant layer of finest quality porcelain enamel which fuses with the layers beneath, forming a solid, durable mass with a permanent luster. That's why Briggs Beautyware retains its "just like new" look through the years. And that's why so many thousands of American home owners are sold on Briggs Beautyware right now-and on the builders who have had the foresight to install it in their homes!

All Briggs Beautyware is stain-proof-and the rigid formed steel construction eliminates all unnecessary dead weight. Remember this when specifying bathroom fixtures for your homes. Give your customers a bathroom they'll be proud of-with Briggs Beautyware fixtures that always look like new!

BRIGGS MANUFACTURING COMPANY - 3001 MILLER AVENUE - DETROIT 11, MICHIGAN



#### **EVERYONE LIKES BRIGGS COLOR!**

The four famous Briggs Beautyware colors are truly beautiful-non-fading and so reasonable! Colored fixtures in complete sets cost only a very little more than plain white. They save you money-increase your profit!





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#### FOR ABOVE ...

Present government regulations still allow you to install copper water tube for hot and cold water lines.

Chase Copper Water Tube's resistance to corrosion makes it the number one choice for domestic water lines.



#### OR DOWN UNDER

Underground piping of Type K Chase Copper Water Tube resists the double corrosive action of earth on the outside and water inside.

The easy-to-install coiled lengths of 40,60 and 100 feet require fewer fittings ... and its soft temper permits bending around obstructions.

#### ...it's Chase Copper Water Tube

Since government regulations do not prohibit the use of copper for domestic hot and cold water lines, or underground service lines, it's wise to plan the use of Chase Copper Water Tube for these two important types of installation.

Chase Copper Water Tube is made

in hard and soft tempers for use with both solder-joint and flared fittings.

Rustproof, corrosion resistant, easily worked, smooth interior for better flow -these are some of the reasons why Chase Copper Water Tube is ideal for long life, fine service.



WATERBURY 20, CONNECTICUL . SUBSIDIARY OF KENNECOTT COPPER CORPORATION

Los Angoiss

# Look to Universal Rundle

## for the latest in style and performance



For 51 years, Universal-Rundle has searched for and found better ways to make bathroom fixtures more beautiful, more efficient, more lasting.

Today, you can look to Universal-Rundle for the newest in smart, modern design that will sell your customers. And you can look to Universal-Rundle for long-lasting, unobtrusive performance that will build good-will for you.

To help you sell, there are full-color Universal-Rundle advertisements in leading magazines such as The Saturday Evening Post and Better Homes & Gardens. These advertisements are telling your customers about these U/R features:

Whitest white -by actual scientific tests!

Matched colors—by U/R, first maker of colored fixtures. Lovely colors, matched closer than the buman eye can see!

Strongest bond between surface glaze and body gives bigbest resistance to chipping!

"Harder than steel" surfaces that are easy to keep clean, scratch-free, sparkling bright!

Write today for the new U/R catalog, showing the complete line of bathroom and kitchen fixtures—plus plans, drawings, specifications and helpful information. (See the U/R line in Sweet's Builders File, also.)

#### FAMOUS "FIRSTS" From UNIVERSAL-RUNDLE!

FIRST-with colored fixtures!

FIRST—with the one-fire Hi-fired process which gives harder-than-steel surfaces and lifetime bond between surface glaze and body!

FIRST—with the patented Rim - Jet flushing principle!

FIRST—with concealed front overflow!



## Universal Rundle

The World's Finest Bathroom Fixtures

UNIVERSAL-RUNDLE CORPORATION, DEPT. 33, NEW CASTLE, PENNSYLVANIA Plants in Camden, N. J.; Milwaukee, Wisconsin; New Castle, Pennsylvania; Redlands, California; Hondo and San Antonio, Texas



home are used more or afford the architect, builder or contractor greater reward than when Lawson cabinets of adequate size are installed.

#### Suggested specifications Lawson 4132 Bathroom Cabinet or equal/or-

- ONE-PIECE DRAWN SEAMLESS STEEL BODY BONDERIZED AFTER FORMING for rough opening 14 x 18 x 31/2"
- Mirror shall be 16 x 22" Plate Glass conforming to National Bureau of Standards Specification CS27-36, with Polished Stainless Steel Frame.
- · Door shall be supported by full length White Enamel Piano Hinge.
- · Cabinet shall be supplied with 2 Glass Shelves and Stainless Steel removable and adjustable Shelf Supports. Bar Type Door Stop. Razor Blade Disposal
- · Finish-Baked White Enamel.

Write for catalog of Lawson Bathroom Cabinets, Lavatory Mirrors and Chrome Accessories.

#### THE F. H. LAWSON CO.

801 Evans Street Cincinnati 4, Ohio Fet 1816

WORLD'S LARGEST BUILDERS OF BATHROOM CABINETS



#### Plumbing Fixtures, cont'd

#### Standard Weight Pipe

	Rem., Theis.  & Colsulated Plain Ends, Ib.		in.			oelers o		Couplings			Test Pressures pd	
Neminal Size, in.			Wall Thickness, is	Outside, in.	Inside, in.	Threads per Inch,	Length, in.	Outside Diam- eter, in.	Calculated Weight, Ib.	Butt Welded	Lap Welded or Grade A	
1/8	.24	.24	.068	.405	.269	27	13/16	.563	.08	700	700	
1/4	.42	.42	.088	.540	.364	18	1 3/16	.719	.07	700	700	
3/8	.57	.57	.091	.675	.493	18	1 3/16	.875	.09	700	700	
1/2	.85	.85	.109	.840	.622	14	1 9/16	1.063	.17	700	700	
3/4	1.13	1.13	,113	1.050	.824	14	1 5/8	1.313	.26	700	700	
1	1.68	1.68	.133	1.315	1.049	11 1/2	2	1.576	.40	700	700	
1 1/4	2.28	2.27	.140	1.660	1.380	11 1/2	21/16	1.900	.48	800	1000	
1.1/2	2.73	2.72	.145	1,900	1.610	11 1/2	2 1/16	2.200	.67	800	1000	
2	3.68	3.65	.154	2.375	2.067	11 1/2	21/8	2.750	1.05	800	1000	
2 1/2	5.82	5.79	.203	2.875	2.469		3 1/8	3.250	2.09	800	1000	
3	7.62	7.58	.216	3.500	3.068		31/4	4.000	3.35	800	1000	
3 1/2	9.20	9.11	.226	4.000	3.548		3 3/6	4.625	4.82	1200	1200	
4	10.89	10.79	.237	4.500	4.026		3 1/2	5.000	4.61	1200	1200	
5	14.81	14.62	.258	5.563	5.047	8	3 3/4	6.296	8.52	-	1200	
6	19.18	18.97	.280	6.625	6.065	8	4	7.390	11.27	_	1200	

(a) The permissible variation in weight is 5 per cent above and 5 per cent

Republic Steel Corporation Char-

#### (Continued from page 350)

washed in hard water last 20 to 40 per cent less. More soap is used with hard water, and minerals will encrust pipes, fixtures, and faucets, cutting down on available water supply and often resulting in large repair bills,

Most water softeners use the Zeolite process, in which the calcium and magnesium salts that make water "hard" are absorbed as the water passes through a zeolite-filled tank. When the zeolite is saturated with minerals, it is regenerated by flushing with a solution of common salt and water, and is then again ready for use. Softeners may be installed permanently, or may be obtained on a service basis, in which a portable unit is installed in the line, and exchanged at periodic intervals by a service man. Installations should be made so that water for lawns, cooling units or other uses which do not require soft water should be taken from supply lines ahead of the softener.

#### Hot Water Heaters

Domestic hot water may be heated either by units built into the house heating system, or by separate gas, electric, coal, or oil heating units.

Electric heaters have a relatively large storage capacity. The operating cycle assumes that water will be heated in the storage tank at night, during the time of low power demand on the utility company's facilities. The hot water is then held in storage in a well-insulated tank for the next

## NEWEST Vitrified IDEA IN HOME **HEATING**

# WARM-AIR HEATING **DUCTS**



It's the talk of the home construction field - new low-cost Vitrified Clay Bell and Spigot Pipe heating ducts for the new basementless homes. Clay is the only duct material that will last forever. It's chemically inert - unaffected by lime in the concrete, or by acid soil conditions or furnace gases.

Clay Pipe heating ducts go down to stay . . . the floor-slab need never be torn up for costly, inconvenient repairs. And its low original price makes Vitrified Clay Bell and Spigot Pipe ideal for the small builderespecially in these days of high costs and heavy competition.

The Clay Pipe duct system combines all the advantages of direct and radiant heating . . . delivers warm air to registers at the same time as it radiates heat through

the concrete slab. It's been proven in literally hundreds of successful home installations.

Convenient lengths are easily handled . . . quickly laid in place by low-cost labor . . . and a complete assortment of fittings prevents on-the-job delays. You'll want to investigate all the amazing advantages of this new, low-cost home-heating system. Write for details today!

> SEND YOUR REQUEST FOR MORE INFORMATION TO THE REGIONAL OFFICE NEAREST YOU

#### NATIONAL CLAY PIPE MANUFACTURERS, INC.

206 Connally Bldg., Atlanta 3, Ga. 100 N. LaSalle St., Rm. 2100, Chicago 2, Ill. 703 Ninth and Hill Bldg., Los Angeles 15, Calif. 311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio itrified



Say goodbye to the hard-to-get lead pan for Tile Showers

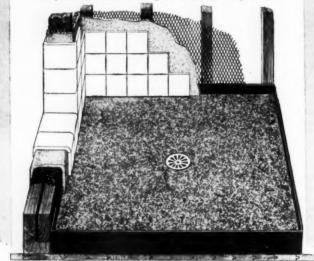
# FIAT PRECAST TERRAZZO RECEPTORS



I find fint precast receptors make a definite saving in building tile showers.

Save money . . . Save time . . . Make a better tile shower floor . . . . . .

One piece slab construction gives a lifetime leakproof floor.



#### Available for prompt delivery See your plumbing contractor

STANDARD SIZES:

Square type 32" x 32" - 36" x 36" - 40" x 40" Corner type 36" x 36" - 40" x 40"

The Fiat one piece precast receptor slab will not be affected by settlement of the building as would the old-fashioned "multilayer" construction of fill, lead pan, grout and tile. The rustproof metal receptor flange encases the tile walls making a leakproof connection.

FIAT)

#### FIAT METAL MANUFACTURING COMPANY

Three Complete Plants
(Chicago area plant) Franklin Park, III.
Long Island City 1, N. Y. Los Angeles 33, Calif.
-Fiat showers are made by Porcelain and Matal Products, Etd., Orillia, Ontario

(Continued from page 354)

day's use, and enables an attractive rate to be offered for the electricity used. Such units should be of ample capacity, so that more than average use of hot water will not require the use of electricity during the day at higher rates.

Gas hot-water heaters are supplied in sizes to handle the needs of all sizes of families, and with different tank and insulating materials. A 30-40 gallon storage capacity is suitable for



AUTOMATIC LAUNDRY UNIT and hot water heater are here shown located on the service porch of a ranch type house

the average family of three or four. Tanks are of galvanized steel, porcelain-lined steel, or monel metal, and are priced and have greatest durability in that order. Insulating material is generally glass wool or fiberglass. Automatic thermostat valves turn the gas on and off to keep water at a constant temperature. usually 140 degrees, for most efficient use. An adjustment is available so that the user may set the water temperature according to individual preferences. Safety valves are necessary to eliminate hazards in the event of failure of gas pressure in the city mains. Heaters for use with liquid petroleum gas such as butane or propane must be fitted with valves giving a complete shut-off in case the pilot light fails. Acceptable units are approved by the American Gas Association and are so marked.

#### Good Installation Practices

The plumbing installation will customarily be made by the plumbing contractor, who will be a licensed master plumber. While it is his responsibility to see that the installation is properly made, in accord with local codes and requirements and in a workmanlike manner, the builder should also see that the specifications for plumbing meet these requirements and that the work is installed in line with the specifications. The cutting of corners, such as installing used pipe or fittings, using standard instead of extra heavy soil pipe, supplying valves or faucets of lower quality than specified, etc., should be guarded against. The best insurance for a good installation is the reputation of the plumber doing the work.

### Plumbing Codes

Because of the importance of good plumbing to good health, it is probable that no other phase of building construction is so rigidly controlled by code requirements. Variations, both minor and wide, will be found throughout the country, but the following provisions, in one form or another, may be considered typical of the requirements for good plumbing installations:

Adequate supply of pure water: adequate piping of suitable materials; fixtures of suitable materials and correct design; drainage system of good materials and design, properly installed to prevent clogging; provision for cleaning drainage system when needed; proper traps and venting of system; adequate sewers or sewage disposal system; proper inspection and testing of new installations; protection against contamination by back siphonage and against back flow of sewage; and adequate light, ventilation and space in rooms having plumbing fixtures.

The adjoining check list will enable the reader to evaluate his own local code in terms of accepted standards.

After installation, the plumbing system should be tested under city pressure or greater, and any required local inspections should be made. No leaks of any sort should be permitted in either the water supply or drainage systems, with the assumption that "they will tighten up or rust up in a couple of days."

### Maintenance and Repair

The owner should be instructed as to the location of shut-off valves for the main coming in from the street, and riser valves for kitchen and bath if these are installed, so that he may shut off the water if necessary. He should be cautioned against letting any objects get into the waste lines which might cause clogging or stoppage. The owner should also be provided with manufacturers' instructions for hot water heaters, dishwashers, automatic laundry units and dryers.



## Features in favor start with LOW COST A doze by buil Case C for low

A dozen features approved by builders and buyers make the Case Camel\* the perfect closet for low-cost and medium-priced construction. First, its surprisingly modest price. This closet of

Case quality vitreous china is famous for low water consumption, an increasingly important factor of economy these days. It flushes powerfully yet quietly. Special reverse trap bowl with large opening and water surface make for dependable action and cleanliness. Tank bolts directly to bowl with one bolt connection, stands free from wall. High grade trim of special design and chrome plated exposed fittings add to the sales appeal of your

bathrooms equipped with the Camel. In 26 colors, and white. See the complete line of Case closets and lavatories.

 Consult Classified Telephone Directory for nearest distributor, or write W. A. Case & Son Mfg. Co., 33 Main St. Buffalo 3, N. Y. Founded 1853. Made by the originators of the ONE-PIECE Water Closet



## I fell in love with the house

LELECTRIC RANGE!



Of course, the range was just one of the things I liked—but I realized it would give me more time to enjoy my home, because I'd spend less time in the kitchen. That's how the Electric Range helped me fall in love with the house.

"We've found that potential home buyers are interested in electrical equipment," says MR. OSCAR DREISEN, of Dreisen & Freedman, Silver Spring, Maryland. "We know that because there were traffic jams when we opened our model house, and fifty houses were quickly sold.

"Naturally we include Electric Ranges in the kitchen, because this is an electric home. The Electric Range gives the home buyer cool, automatic cooking—the kind that's fast, economical and clean. All our kitchens are electric!"

- Kitchen equipment in the Dreisen & Freedman homes includes electric refrigerator, electric dishwashersink with food waste disposer, and ventilating fan. And the range? Like all the other equipment—of course, it's ELECTRIC!
- Prices of these all-electric homes range from \$12,750 to \$14,250, depending on whether or not they have basements. They are three-bedroom ranch-type, with five different exterior designs to choose from.

EQUIP YOUR HOUSES WITH ELECTRIC



ELECTRIC RANGE SECTION
National Electrical Manufacturers Association
155 East 44th Street, New York 17, N. Y.

ADMIRAL - COOLERATOR - CROSLEY - DEEPFREEZE - FRIGIDAIRE - GENERAL ELECTRIC - GIBSON HOTPOINT - KELVINATOR - MONARCH - NORGE - PHILCO - UNIVERSAL - WESTINGHOUSE



OR years the kitchen has been recognized as the recognized as the focal point of interest for women considering the purchase of a home or thinking about modernizing an existing structure. Public interest is particularly high in the latest types of dishwashers, garbage disposal units, automatic laundries, integrated ranges, ventilating fans and other devices. Successful home builders learned years ago that a satisfactory kitchen in a house offered for sale not only does a great deal to reduce sales cost, but serves to make the ultimate purchaser happier and better satisfied.

### Planned Efficiency

Time and motion studies of kitchen efficiency have developed new concepts of kitchen planning. Work and storage space for each of the main functional areas in the kitchen have been determined as being a minimum of 36 inches of work and storage space by the refrigerator, 18 inches by the range, and 36 inches by the sink, with 18 inches on either side of

the sink bowl. These figures are based upon studies showing where food and utensils should be kept at point of first use. During a test preparation of 84 meals, one study revealed that food and tools were used first at the sink 1.057 times, at the range 801 times, and at refrigerator 2.800 times!

Half the walking involved in preparing the meal is between range and refrigerator. Because more trips are made from dining area to kitchen during clean-up than in serving, the door to dining area should be between sink and refrigerator, or at least closest to sink.

### Estimating Kitchen Storage Space

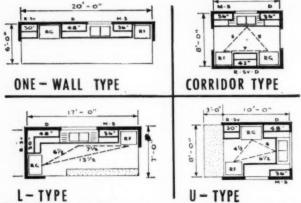
The basis for determining the correct amount of storage space necessary in a kitchen is the number of bedrooms in the house. One person per bedroom, plus an additional person for the master bedroom is considered normal occupancy.

Studies have proved that six square





CABINETS SUSPENDED FROM CEILING make an interesting eye-level break between dining and work areas of kitchen



CABINET KITCHENS offer sliding glass doors, pull-out shelves, cutting blocks, and fluorescent lighted interiors



KNEE-HOLE CUPBOARD with telephone serves as desk for menu planning

feet of storage space in wall cabinets is required for each permanent resident of a house. To this must be added twelve square feet for entertaining and accumulating.

Base cabinet storage is measured on a lineal foot basis. As a general rule, base cabinets should occupy all space beneath the wall cabinets not already occupied by the range, sink, refrigerator or dishwasher.

If there is sufficient wall storage space, there will usually be adequate base storage. Thus, in a two-bedroom house there would be six square feet of wall cabinet space for each person or 18 square feet. This, plus the 12 feet for entertaining and accumulation, totals 30 square feet of wall cabinet storage space.

In some cases window locations limit the amount of wall space available, although there would be plenty of base cabinet space. In such cases the difference should be made up by installing another wall cabinet, a tall shelf cabinet or a storage closet elsewhere in the room, without a base cabinet to correspond with such a unit.

### Lengths for Counter Areas

Actual practice and research studies have revealed there are definite maximum and minimum lengths for all counter areas. There should be not less than four and a half nor more than five and a half lineal feet of counter space between the refrigerator and sink. There should be no less than three, nor more than four lineal feet between the sink and range.

There are variations and additions to these basic principles. Snack hars are frequently extended out from the wall into the kitchen or at the end of the installation. In large kitchens, islands are sometimes used to save steps.

### Clearance Dimensions

A clearance of 18 inches is considered desirable between the counter surface and bottom of wall cabinets. Wall cabinets located over the range should have a clearance of 22 inches above that unit for best results.

Major appliances and cabinets are from 24 inches to 28 inches in depth. To clear such equipment, a door opening should be not less than 30 inches from the corner. In cases where a range is adjacent to a door, a clearance of 48 inches is desirable. The distance between a window opening and a corner should be a minimum of 15 inches because standard flat wall cabinets are about 13 inches in depth. The underside of window sills should be not less than

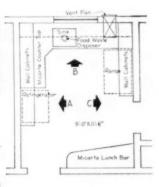


THREE BASIC KITCHEN ARRANGE-MENTS commonly used today offer many variations in providing for efficient food handling and serving. A breakfast bar is located in the utility room immediately behind the kitchen sink and counter in this plan. Direct serving is permitted by opening in wall below ceiling-hung cabinets. Folding door separates kitchen from dining room. Laundry is a compact arrangement with tray, washer, and dryer in sequence for easy operation



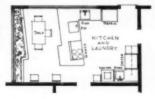


This U-shaped kitchen permits easy serving to lunch bar while keeping tradfic path open from utility room to dining-living room. Refrigerator at (A) lines up in sequence with food preparation counter area and sink at (B), more counter space and range at (C). Vent fan is provided to remove cooking odors, steam, and excess heat





With a garden on the inside as well as outside the house, the combination kitchen and dising area of this house is designed to combine beauty with efficiency. Kitchen and laundry are combined in one room, but with refrigerator, sink, and range lined up in sequence in one "L"; and washer, sink, and dryer in sequence in another "L" in opposite corners of the room. Range has extended counter area all around for easy serving and collecting of dishes



44 inches from the floor to provide enough space for backsplashers.

### Arrangements

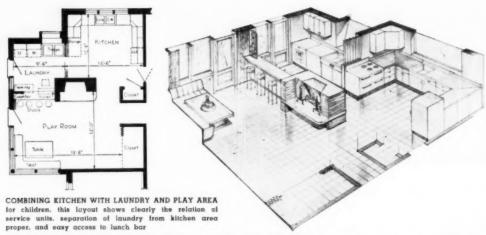
There are four basic types of modern kitchen arrangement: the U-shaped, the L-shaped, the one-wall type, and the corridor type. The orthodox "U" layout is usually found to be the most efficient. By placing the sink on the center wall, preferably under a window, steps are saved in working from one area to the other. This layout also lends itself to plans which call for breakfast nook, meal planning centers, and highly desirable extra cabinet and counter space.

The "L" shape is compact and efficient when storage, preparation and cooking centers are in correct sequence. The opposite two walls in such kitchens are open for other purposes—built-in breakfast nooks or laundry set-ups being most common.

Lighting for kitchens is receiving more consideration, with the trend towards fluorescent fixtures located above sink and under wall cabinets, with indirect ceiling light, and ceiling flush-hung spots to provide light for special areas. Provision should be made for wiring sufficient to accommodate the host of modern electrical appliances including toasters, grills, irons, and similar units. Line capacity is important, as a breakfast involving toaster, grill for eggs and bacon, and electric coffee pot may use as much as 4,000 watts.

Floor and wall coverings should be selected which are durable, attractive, and easily cleaned. Seek advice of experts before determining color. Follow manufacturer's directions in all installations.

Most important in kitchen planning is the determination of the exact inside dimensions of the kitchen and standard equipment in relation to proper location of equipment, to avoid odd spaces or corners which





A KITCHEN conveniently arranged to fit into harmonious relationship with other living area of the house. Snack bar is of wood, as are kitchen cabinets which harmonize with dining area furnishings. Inlaid linoleum floor carries moil of modernism and efficiency into dining area, while L-layout of kitchen allows plenty of space for traffic through kitchen to rear door and utility room



call for filler units, or end up as dirtcatchers.

### Getting Into Remodeling

Modernization or remodeling of old kitchens offers attractive sales opportunities for dealer-contractors. Alert builders have long recognized that remodeling service enables them to contact new clients, keep in touch with established customers, and maintain sales promotion for their own business.

Some builders have hesitated about going into kitchen remodeling because they felt that kitchen appliances were too technical. However, new planning aids such as miniature appliance kits and manuals containing standard specifications and procedures have been developed by manufacturers. These take the guesswork out of design and layout, and the whole plan may be discussed with the customer and changes made with models before any work is begun.

Prepare a sketch of the existing kitchen, showing the location of the windows and doors. Start at one corner and continue around the walls, giving the location of all the openings. Show the dimensions from corners to door or window easing, as well as over-all width of doors and windows including trim. As a check for these figures, measure the entire length of each wall from plaster to plaster. Height of window sill from floor, height of window including trim, width of trim around doors and windows, and the over-all height from floor to ceiling are essential. Of extreme importance is the direction of the swing door. The nature of the room accessible from the door should be noted, as this information

(Continued on page 364)

Cabinet manufacturers from coast to coast are adapting their specifications to the installation of Chambers waist-hi GAS Built-Ins. The typical arrangement shown here is by Belwood Kitchens.



COOKS WITH THE GAS TURNED off ®

It's no mystery why women go for the principle of Chambers waist-hi GAS Built-Ins. They are keen for this most modern development in automatic cooking. They enjoy the freedom from stooping, bending, and lifting. They like these units because they can be installed anywhere in the kitchen.

Leading kitchen-cabinet companies have been quick to recognize this new kitchen trend. They now provide base and wall cabinets to fit in with Chambers Built-Ins. (We'll send you their names and specifications, on request.) Modern streamlined kitchen cabinets together with Chambers waist-hi GAS Built-Ins transform workshop drudgery into a modern dream of efficiency.

Here is a vast opportunity for alert designers and builders. Women prefer Chambers Built-Ins not only because they represent a new trend in kitchen design. They also represent a new way of cooking that saves food, flavor, time, fuel and labor. Only Chambers "In-A-Wall Oven" Cooks with the Gas Turned off. Only Chambers offers a choice of oven doors in stainless steel or seven decorator colors. No other line of cooking equipment offers you such flexibility in kitchen design, or provides your clients with this World Famous Cooking Performance.



"IN.A.WALL." Oven is heavily insulated—top, bottom, all sides—utilizing retained heat to "cook with the gas turned off," Its huge, family-size capacity accommodates up to 40 lbs. of roast. Beautifully finished in stainless steel, or stainless with oven doors in choice of seven beautiful decorator colors.



"IN A TOP" 5-Burner Drop-In with plated surface fits into counter top by providing opening of 18; z 335, g, Indi-vidual drip rings may be removed easily for quick cleaning. 4 burner top also available.

ACCEPTED by FHA for Underwriting Loss Chambers Corp., Dept. ABT-452, Shelbyville, Ind.

Gentlemen:

Please send me at once A.I.A. Specification Sheet and name of local distributor.

Originator and Master Builder of Insulated Ranges since 1910

I am an Architect ( ) Builder-Contractor ( ) Dealer ( )

FIRM NAME ADDRESS.

NAME ZONE STATE ------



THIS KITCHEN provided little storage space, leaving utensils out in the open to gather dust. Unnecessary time was spent in cleaning, and dishwashing was difficult and tedious



REMODELED, there is abundant convenient storage space. Cleanup and dishwashing have been simplified, and sequence arrangement of refrigerator, food preparation area and stove simplify other tasks

(Continued from page 362) is pertinent to the kitchen planner. Location of the water source, radiators or registers (over-all size) is also of importance. Any unusual conditions should be noted.

If the present appliances are to be retained, list the dimensions of range and refrigerator. The planner will also need to know the number of children and adults in the family, the amount of entertaining to be done, and the direction the kitchen faces. Before working on this information, or before sending it to the manufacturer's planner, a re-check on notes and measurements should be made.

### Specialties

The installation of specialties or features is part of the basic arrangement of the kitchen. These features are designed with both practical and ornamental functions in view; thus ornamental shelving over the range with curving valance may also be practical with concealed lighting and space for seldom-used utensils.

In many modern kitchens the distance between work-counter top and the underside of wall-hung cabinets has been increased. This reduces head bumping and permits installation of small intermediate shelves for condiments or other small articles.

Some kitchens feature a built-in desk or knee-hole space for the housewife to use in planning menus, letter writing, and telephoning. Window sills may be extended beyond normal depth to provide for potted plants, and glass shelving may be built into windows for the same purpose.

Ranges and sinks which are used in a peninsula arrangement frequently have built-in cabinets in back of them with shelves facing a dining or living area immediately adjacent.

Special attention may be paid to backsplash around work areas, with tile or plastic material affixed to walls to the height of a foot or more. Sliding door cabinets and vertical storage compartments for trays and pot lids are other desirable features of cabinet construction which call for special planning in advance.

Home builders find there should be no skimping on kitchen equipment in figuring costs. An over-all increase of ten per cent in the cost of kitchen units would add only a small amount to the total cost of the house, and the sales appeal of a well-equipped kitchen cannot be overlooked.

### Built-Ins and Fixtures

The snack-bar and breakfast nook have established themselves as almost standard items. The choice between a snack-bar or built-in seat will be dictated by the space allotted to the kitchen, owner preferences, size of the family, and the type of family activities to be considered.

The snack-bar may be combined



SMALL KITCHENS properly organised can be ingenious workshops for the homemaker. Handy drop leaf table folds into neat cabinet



WITH OR WITHOUT A WINDOW, GOOD LIGHTING over the sink is very necestary, may be an incandescent bulb enclosing globe. fluorescent fixtures, or a valance-type lighting arrangement



DECORATIVE SHELVES AND VALANCE placed over range utilize wall space and add note of color to kitchen



SNACK BAR built in close to range for convenience in serving.



BUILT-IN LOUNGE-TYPE SEAT covered with leather-like plastic material is washable



THIS SNACK BAR is built onto back of sink cabinet, makes serving and collecting dishes easy

with ceiling-hung cabinet units to form a pass-through between kitchen and dining room, giving the illusion of more space. It is usually more economical than the built-in seat unit. Families with several children find it ideal for quick breakfasts and afterschool spacks.

The built-in breakfast nook is more expensive. Although there are some units available on already-made basis, it is more common to have the breakfast nook built to order if the contractor does not wish to do the work himself. More space is needed, but the comfort of upholstered seats and the conviviality of facing people across the table have a wide appeal.

Table tops for both types are usually of laminated plastic, but may also be of asphalt tile or linoleum; stainless steel is sometimes used for snack bars doubling as a pass-through unit.

### Cabinets and Sinks

Modern kitchen cabinets of wood or metal are designed as integrated units which harmonize with sink, range, dishwasher, and refrigerator. They are available in a great variety of sizes, and will fit practically any space. Filler blocks space out odd dimensions, and the "custom look" may be had at low cost. Cabinet units may be shipped either knocked down or pre-assembled, unfinished, or already painted.

Special units for corners, under and over sink spaces, and projecting ends make installation problems simple. Ready-made cabinet units are often combined with a made-to-fit counter. Three-quarter inch plywood is covered with laminated plastic or linoleum to provide an uninterrupted work space over the whole cabinet and sink area. The kitchen sink is the basic unit around which the rest of the equipment is planned and built. Its size will depend on the over-all

size of the kitchen, its proportions, and plan for equipment arrangement.

The present trend is for the sink built-in as an integral part of the kitchen cabinet work. Cabinet sinks are made by manufacturers in a full range of sizes and styles, and sink bowl units are also available in a complete range for installations into built-in cabinets. Faucets are of the mixing type, having a swinging spout for directing the water for washing or rinsing (double compartment sinks may require a longer than standard spout). In all except the most economical installations, a spray for rinsing is a part of the faucet assemble, with a built-in diverter valve supplying water to the spray whenever used. A faucet having provision for introducing a detergent into the spray for washing has met with some popularity.

### Ranges

Both electric and gas ranges have kept step with the advances in design and construction of kitchen fixtures and appliances. Modern units harmonize with other appliances. Finishes are heat resistant and easily cleaned. Improved insulating materials make cooking cool work even on the hottest days.

In many sections of the country,

the kitchen range is being considered as built-in equipment, which will permit its inclusion in the mortgage—a valuable sales aid.

Sizes range from small fourburner units with underneath oven, for minimum space and cost, up to six- and eight-burner models with two ovens and broilers. A recent innovation is the built-in-the-top griddle for frying eggs, bacon, pancakes, etc. Built-in lights are often desirable and many units feature timing units that will turn the heat off at the end of a given time, or even start and stop the stove at specified times.

A new design feature is the construction of both electric and gas stoves in modular units which may be arranged in any desired combination of units. Burner units may be installed into counter tops. If desired, two four-burner units may be placed with counter space between. Oven units may be combined with drawers to set the oven at any desired height. If desired, the oven may be located away from the cooking surface top. Greater freedom in kitchen planning is thus possible, as designers are no longer limited by the package size of the conventional range.

Wiring for electric ranges must be strictly in accordance with code re-



CABINETS WITH SPECIAL FEATURES such as pot lid holder at left, cutlery drawer and slide-out shelves for heavy utensils. Door knobs and drawer pulls should be large with room behind them to make cleaning easy



TWO OF MANY DIFFERENT MODELS of gas and electric ranges available. Range (A) has 23-inch oven, is a 30-inch unit. The heat-treated glass broller is said to be smokeless. Range (B) has porthole windows in both baking oven and broller. color top in a variety of pastel shades with standard white sides, and concealed griddle. Automatic controls are available



quirements. Special circuits are necessary, as an electric range may draw as much as 10,000 watts at one time.

### Refrigerators and Freezers

More efficient insulating materials and smaller power packages have increased capacities of refrigerations without adding to over-all dimensions. Freezer compartments are now standard. It is sound practice to provide as large a refrigerator as space and costs will permit. Freezers for kitchen installation may be obtained in either upright or counter-top styles.

### Counters and Tops

Materials for counters and cabinet tops are of a great variety. Laminated plastic, linoleum, stainless steel or monel-metal, and tile all have their particular appeal. Good fit and careful installation are necessary to secure counter tops that will not leak, pull away from walls or cabinets, or separate at joints. Poor workmanship will show like the proverbial sore thumb, and soon reflect on the reputation of the builder.



PICTURE WINDOW over sink, plus recessed spots in ceiling, provide efficient lighting for this kitchen

### Fans and Ventilators

Many different fans and ventilator units are made for through-the-wall installation over the range. Where the range is located on an outside wall, the solution is easy. Ranges against interior walls may be ventilated by exhaust fans having ducts concealed in a soffit or in the ceiling between joists. If the ventilating unit exhausts through a duct, it is desirable to include a cleanable or replaceable filter to prevent the duct from becoming grease laden, creating a fire bazard.

Various specialized units are available. Some are made for glass-block installation. One unit, installed in the ceiling and attic, serves to ventilate both at the same time with one blower. Another, installed in a hood over the range, draws both cooking odors from the range and hot air off the ceiling, keeping kitchen temperatures down. A unit which may be mounted close to the top of the range permits the installation of cabinets above, otherwise impractical because of the heat from cooking.



THIS 8 CUBIC-FOOT HOME FREEZER has storage baskets mounted on slide rails. Lid is counterbalanced for easy handling. Automatic alarm sounds when temperature is above control point



RETRACTABLE SPRAY IN STAINLESS STEEL SINK UNIT (A) is useful for rinsing dishes. cleaning vegetables. Model (B) has porcelain top and is available as a single unit or to be built-in with other cabinets and units



The ventilating fan selected should be of a size adequate for the kitchen. Recommendations are for an 8-inch fan (minimum) for small kitchens, 10-inch for medium size kitchens, and 12-inch for large kitchens.

### Dishwashers

In houses above the lowest price class, the automatic dishwasher is often one of the "extra" features that sells the house. Dishwashers are either built in as a part of sink cabinets by the manufacturer; are available as separate units; or may be obtained without cabinets for custom installations. Top and front loading models perform with equal efficiency and ease in loading, and selection should be made on the basis of space needs.

Where dishwashers are installed, the builder will have to take the hot water factor into consideration. For proper sterilization of dishes, a temperature of 180 degrees is necessary. Most water heaters are not designed to supply water of this temperature, and there is danger of scalding if the water in the hot water pipes throughout the house is of this temperature. Many units have booster heaters to raise the temperature of water for dishwashing—a desirable feature.

Dishwashers are usually motor driven, and provision for electrical connection should be made if dish-

(Continued on page 370)

### LICK COMPETITION

SELL HOMES FASTE



Let American Kitchens prove the top quality construction of the houses you sell-let the quality features of American Kitchens reveal the quality features of the whole house! For customers look for quality in things they know. And they know that American Kitchens are not only beautifully designed -but exceedingly well built.

When you show them, feature by feature, how American Kitchens by its very construction must use superior steel-how it uses the finest insulation materials, the most expensive door hinges and nylon drawer slides-how it is designed by a famous designer to make working easier-then, at the same time you are proving that yours is a house that gives attention to superior materials and work-

It pays to feature American Kitchens. And you will discover that they are more economical besides, because they give you more sales return per dollar, sell houses faster than any other brand.

AMERICAN KITCHENS (AVCO) DIVISION

manship.



CONNERSVILLE

### Offers More Quality Features Than any Other Brand

























SELL HOMES FASTER

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AVCO Manufacturing Corp., Dept. AB-3 American Kitchens Division Please send me your new Architects' and Builders' File. Connersville, Ind.

Address. \_Zone\_\_State\_



"Sold 125 G-E houses—each with G-E Kitchen-Laundry!"

Here's Mr. Arthur Oman of Weymouth Heights, Mass. who sold 125 houses within 10 days. He says: "I'm sold on the G-E Kitchen-Laundry in new homes just as Mrs. Duffy is!" Mrs. Duffy (also above) says: "All my friends wish they had a G-E Kitchen-Laundry for just that extra \$3.50 a month!"



His General Electric equipped projects won an N.A.H.B. award!

Mr. Herbert Tandy (above) and his associates, Messrs. Norman Tandy and Alan D. Allen, are builders of the Saddle-Wood Hills Development in Hillsdale, New Jersey, N.A.H.B. stated: "The projects presented were a great credit; sound planning, ingenuity, and market-appeal were all in evidence."

Again in 1952, successful builders will

### <u>pre-sell houses by featuring</u> the G-E Kitchen-Laundry!

Your houses will sell much faster when women see all the wonderful, timesaving equipment and learn that it adds as little as \$3.50 a month extra to regular monthly mortgage payments!

Here you see photographs of six successful builders from various sections of the country calling back on women who purchased houses from them months previously.

"Call-backs" convinced these builders—more than ever—that it pays to feature the G-E Kitchen-Laundry in the houses they build.

Isn't it time you, too, took a good look at these facts? We sincerely believe that if you do something about them, you will sell your houses faster.

- You know that most women want—and expect convenient, timesaving kitchen and laundry appliances in their new homes.
  - 2. When these appliances bear the General Electric

nameplate, prospects become more quickly sold on the house because they're well-acquainted with General Electric products. They know they are the very finest appliances available. They associate the quality of the appliances with the entire construction of your houses.

- 3. Even families with \$50-a-week income are enjoying the comfort of a G-E equipped Kitchen-Laundry! That's because . . .
- 4. The buyer pays as little as \$3.50 a month more on his regular monthly mortgage payments.

### Whether you sell 10 or 1000 houses ...

... you can sell them faster if they're equipped with matched General Electric Appliances.

Why not start selling your houses faster, just as the builders on these pages are?

See your local G-E distributor, or write to the Home Bureau, General Electric Co., Louisville 2, Kentucky.



"G-E equipment gives us a distinct advantage over competition!"

Here's Mr. Clarence M. Lemon, builder of Wichita, Kansas homes who says: "We sold our entire project of 49 houses the very first day. We included the General Electric Kitchen-Laundry because we felt it gave our homes a distinct advantage over others selling in about the same price range."



"It's the clincher that helped us close 156 contracts!"

Mr. Edwin I. Abbott of Lyons, Illinois says: "The complete G-E Kitchen-Laundry in our 'House of Charm' homes was the clincher that helped us close 156 contracts in one week end. A woman is really sold when she sees General Electric Appliances included as a part of the complete house package."



"Sold 100 G-E houses-mostly to people with \$50 to \$70 incomes!"

Here's Carl B. Anderson of Virginia, Minn. who sold 100 houses with G-E Kitchen-Laundry during the past three years. He says: "It was the kitchen-planning service offered by the local G-E distributor that first interested me in including the G-E Kitchen-Laundry in my houses."



"57 sold the first day ... rest sold themselves!"

Here's Mr. Chas. A. Mohr, president of the Builders Assn. of Maryland. He says: "No matter what the price range may be, women do expect to see General Electric equipment in the kitchen, or else they're not keenly interested. It's no secret: G-E Kitchens sell my houses!"

GENERAL (26) ELECTRIC





OVERHEAD FAN set in ceiling near range removes cooking odors, steam, smoke. Also contains concealed spotlight



### Garbage Disposers

Waste disposal units—electricallyoperated grinders, shredders, or pulverizers mounted in the sink drain are the modern method of handling food wastes. Kitchen odors are minimized. The unsightly outside garbage can greatest single factor of rat infestation in cities, is eliminated. These advantages, plus added sales appeal, more than outweigh the initial cost of such units.

Table scraps, food wastes, even bores, are all shredded by hardened steel grinders, and flushed down the drain. Modern units are quiet, dependable, and safe in operation. Interlock devices prevent operation unless water for carrying away wastes is flowing. These units may be built-in as a part of new sinks, or may be obtained to mount on any modern sink already in place. Plumbing and electrical connections should



BASE CABINETS are available in both wood and metal which can be selected in a wide range of sizes to create almost any combination of storage and work space. Cabinets have drawers and compariments with slide-out shelves



COMBINATION SINK AND DISHWASHER UNIT. Dishwashers have either raised top or pull-out front depending upon kitchen layout and space available

be made as the manufacturer directs, and in accordance with local codes.

Local codes should be checked for installation requirements. Some require a minimum of a 2-inch waste line. Others will not permit disposal units to be used in conjunction with a grease trap.

The individual incinerator type of disposal unit may be used in locations having plumbing code restrictions. Waste material is placed in a metal container which is fired by gas. The residual ash is removed at periodic intervals, and safe, odor-free operation is assured.

### Unit Kitchens

Builders of minimum-space units





TWO TYPES OF INCINERATOR UNITS for the home. Model (A) is off the floor at convenient height, has an automatic gas burner, burns trash. Ashes drop into removable tray at bottom. Model (B) has two compartments, one for drying, the other for burning trash, is gas-burning



COMPACT UNIT-KITCHEN has sink, range, refrigerator, and storage cabinets combined into one space-saving unit



VENTILATING HOOD OVER RANGE is a popular feature. Hood is connected to chimney or vent pipe

such as motels and kitchenette apartments have prompted the development of unit kitchens, in which range, oven, sink, and refrigerator are assembled into one or two compact units taking as little as 48 inches of floor space. While such compactness is not advisable for general use, these units will solve problems encountered in creating attic or basement flats, making rooming-house conversions, and the like,

### Laundry Equipment

Surveys show that women prefer a first-floor laundry or utility room adjacent to the kitchen, rather than having the laundry part of the kitchen, or in the basement. With numerous compact laundry units available, an efficient laundry can be installed in a small space. Arrangement should follow the work se-

(Continued on page 372)



CUT.AWAY MODEL OF NON-CLOGGING DISPOSAL UNIT with shredding mechanism which reduces refuse to small particles. Sink cover can be used to start mechanism or used as sink stopper or strainer.

# is the word for

Kitchens DISTRIBUTORS

TRACY Kitchen Distributors are established, respected and capable concerns. Their most important characteristic, measured by TRACY standards, is the quality of keen alertness to the interests of their dealer customers.

Thorough-going experience in the kitchen business, and an open attitude toward progress and development, fit perfectly with the TRACY policy of volume-building with a top quality line of products.

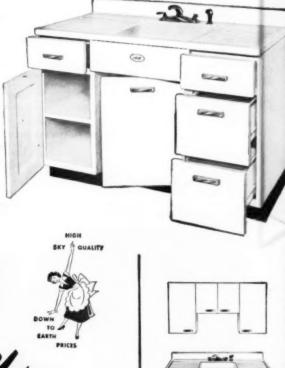
TRACY Distributors, strategically located, responsible, service-minded, offer the best possible cooperation to retailers interested in kitchen profits. And we'll be glad to put any interested dealer in touch with HIS TRACY Distributor.

Smart- is the word for KITCHENS
Major Stores
Program

Since this unusual program was released, some months ago, bigname and big-volume stores have been going to town for extra profitable kitchen volume. Tremendous promotional power—values that mark the participating stores as true leaders in sharp, effective merchandising. Complete details available through TRACY Distributors, whose names are furnished gladly on request.

THE QUALITY-VOLUME LINE

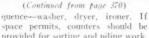




TRACY MANUFACTURING CO., Division of Edgewater Steel Co., Pittsburgh 33, Pa.



TYPICAL AUTOMATIC HOME WASHER—compact, portable unit which automatically fills itself with water, washes, rinses, spin-dries, drains, cleans itself and shuts off



provided for sorting and piling work. A ventilated receptacle for dirty clothes is desirable. Cabinets for soaps may be a part of mop-andbroom storage facilities.

### Washers

The automatic laundry machine is the basic unit. Generally speaking, the automatic washer does not take any more hot water than other laundering methods. Correct water temperature for operation is essential, however, and water heaters should be adequate for laundry requirements.

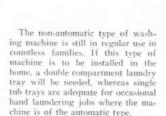
Plumbing should be roughed in to provide water and drainage lines for automatic washing units. Codes should be checked to determine requirements; some codes will not permit direct connection to waste lines, but require discharge of waste water through a floor drain, or other separately trapped discharge.



THIS IRONER folds up for storage in small space. features sleeve roller and detachable shelves for holding work



THIS KITCHEN-LAUNDRY has glass sliding doors between laundry area and kitchen area, making communication easy between the two. Tray with cover, washer, and dryer are arranged in sequence for easy handling of laundry operations



For plumbing economy, the automatic washer is located adjacent to either the kitchen or bathroom, or in the basement below one of these rooms

### Dryers

While dryers of the large capacity type have been in use in commercial laundries for years, the small, cabinet-type of forced air dryer for the home is a recent development. Heat is either gas or electric, and a fan forces a current of warm air through the clothes in a revolving drum. Dryer cabinets are matched to washers by manufacturers, and are suitable in appearance for kitchen



AUTOMATIC ELECTRIC DRYER dries clothes completely in 15 to 25 minutes by means of circulating hot air. Viewing door and interior illumination are included in the unit

installation if desired.

Electrical and gas connections should be provided as required. All dryers made by reputable manufacturers have proper safety provisions and normally present no hazards.

### Ironers

The addition of an ironer to the automatic washer and dryer rounds out the full complement of laundry equipment for the modern housewife. Ironers may be of the rotary or flat press type, and while the ironer may be included as a part of the laundry package in the sale of the house, the buyer's choice should be the only factor considered.

Electric ironers are thermostatically controlled for even heating, and should in addition include a heat adjustment for different fabrics. Small units are made to fold up and slide in or out of a cabinet, while larger models have a cabinet-type lid which uncovers to provide shelf space for receiving of finished work.



AUTOMATIC ELECTRIC WASHER, automatic electric dryer, and electric ironer all fit into compact arrangements for modern kitchen-laundries and increasingly popular utility rooms



IRONER conveniently located next to dryer and washer. Model has shelf in front for holding work, and lid folds back to hold finished work



## EASY TO INSTALL! APPEALING TO TENANTS! PORCELAIN FOR PERMANENCE!

### DWYER KITCHENS

39 to 69 inches wide

Complete kitchen facilities . . . range (gas or electric), refrigerator, sink and storage space . . . streamlined into compact units 30 to 69 inches wide.

Proven products of an organization with over a quarter century record of proven success in specialized production of compact kitchens.

Vitreous porcelain fronts never require repainting . . . brilliant, white porcelain that stays forever clean with soap and water.

Negligible maintenance costs *proven* in a quarter-century record of Dwyer Kitchens...largely in the hard usage of rental properties. Electrical and mechanical equipment of finest quality... every detail accessible for service from the front without disturbing the assembly.

If you seek tenant appeal, freedom from maintenance problems and low operating costs . . . investigate Dwyer Kitchens.

gas or electric range





modern refrigerators



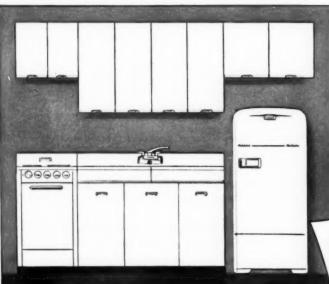
Manufactured by

DWYER PRODUCTS CORPORATION Dept. AB 5, Michigan City, Indiana DWYER PRODUCTS CORP Dopt. AB 552 Michigan City, Indiana

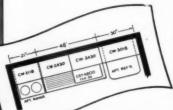
Send me illustrated butletin on Dwyer Kitchens.

### **CROSLEY GIVES YOU THE**

The Best New Convenience Features . . .



• Complete Crosley Kitchens can be selected to fit the size and shape of floor plans you lay out. Beautifully styled Crosley products are precision-engineered to fit perfectly, to harmonize with each other. Easy installation features simplify your planning—compact design conserves floor space.



LIMITED SPACE is no problem when you choose Crosley. Special models are available—designed to occupy a minimum of space, yet offering many of the big Crosley features that housewives want.

MODEL UD-7. You have several compact Shelvador® Refrigerators to choose from with widths as narrow as 24¼ inches. Each has many Crosley selling features. In addition, you have a wide selection of compact Crosley Electric Ranges, Shelvador® Freezers, Wall and Base Cabinets, Sinks, Food Waste Disposers, Electric Water Heaters, and other beautifully styled kitchen products.





















Shelvador\* Refrigerators

Shelvador Freezers

e Electric

Sinks and Food

Steel Kitchen Cabinet

Electric Water Heate

Radio Receivers

Television Receivers

Room Air Conditioners

### **BEST THINGS FIRST...**

### the Best New Installation Features



pantry, silent server and range and refrigerator pantries lend individuality to any kitchen! Here's an example of what can be done when your plans call for a full range of fine kitchen facilities.

MODEL T-CAD-12. The latest Crosley convenience features make this Shelvador Refrigerator the center of attraction in any kitchen. It's so good that it's America's most copied refrigerator. Automatic Defrosting . . . shelves IN, not on, the door . . . ButterSafe automatically keeps butter spreadable...matchless"soft-clo"Interior Styling.

For further information, write us for the name of your nearest Crosley distributor:



DIVISION



1329 Arlington Street, Cincinnati 25, Ohio



**CROSLEY...** Better Products for Happier Living

### **Working Dimensions for** Sink and Dishwasher Installations

B UYERS today are seeking homes that feature kitchens that are complete in all details, including mechanical equipment and appliances. Builders, likewise, are taking note of the trend, and it is predicted that the day is not too far off when appliances such as automatic dishwashers and garbage disposer units will be recognized as standard equipment for modern living.

Manufacturers have standardized the height of appliance counter work as 36 inches above the floor. This was adopted as the height most convenient for the average housewife. Sinks, dishwashers and base cabinets are designed to be placed under a continuous counter top for a custom installation, or can be located side by side with matching tops, However, the majority of consumers buy appliances individually, and the height of the backsplasher on the dishwasher-sink will affect installation beneath a window.

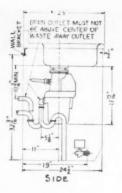
One manufacturer recently introduced its latest combination sink model with a six-inch high backsplasher, paralleling the trend in higher backsplashers on electric ranges. This new model has a single control faucet located on the backsplasher, as well as storage compartments for soap, brushes and other articles used at the sink. They assert that this arrangement gives uninterrupted work surface on the sink top and simplifies cleaning. While automatic dishwashers are in use in less than two per cent of the nation's wired homes, yet it has been tagged by manufacturers as an appliance with an excellent potential market.

The majority of manufacturers of dishwasher-sinks have followed the practice of mounting the faucets on the deck of sink and provide for a four-inch high backsplash. This method conforms to the present trend in backsplashers used in conjunction with manufactured kitchen cabinets and

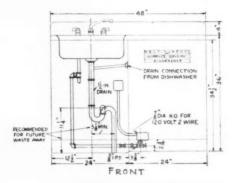
counters

10 12 27 - 29 17 18 30 32 34 33 35 36

DIAGRAMMATIC drawing showing General Electric Company's sink. Disposall and pump model dishwasher for installation under kitchen window. Connections to basic soil and vent pipes indicated



OUTLINE drawing of front and side view of Westing. house electric dishwasher and sink, indicating the position of basic component to establish roughingin dimensions for installation. Over-all height to backsplash is 40 inches Plumbing and wiring may be brought through floor or side cabinet as shown.

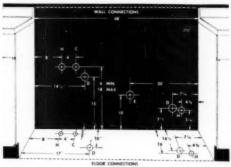


### **Kitchen Equipment** Specifications

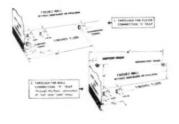
DESCRIPTION of the numbered parts are as follows: 1-Vacume breaker cover. 2-Vacume breaker assembly, 3—Hot water line. 4—Cold water line. 5—Flow interlock switch, 6-Clamping ring, 7-Supporting ring. 8-Mounting gasket. 9-Mounting studs-ribber washer. 10-Flow interlock, strainer, 11-Connection to flow interlock switch, 12-FA3JR Disposall, 13 -Disposall power supply. 14-Tailpiece assembly. 15—Hot water line to dishwasher. 16—1½ inch "P" trap minimum. 17-Hand valve. 18-Solenoid operated water inlet valve and strainer. Note: Standard equipment with dishwashers. All pipe and fittings to be purchased locally, 19-Water inlet to dishwasher, 20-Ground wire to motor. 21—Water inlet valve plug. 22—Heater plug. 23—Motor plug. 24-Soil pipe cleanout. 25-Vent. 26-Water inlet to dishwasher. 27-40 inches from floor to underside of window stool. 28-Electric outlet box for Disposall and dishwasher-Maximum load 1500W. 29-Impeller, 30-Drain Opening, 31-Pump drain hose. 32-Dispenser cup release cable. 33-Main switch and cover lock cable. 34-1/4 H.P., 1725 r.p.m., 115 volts A.C., 60 cycle, 4.8 AMP, motor, 35-Control. 36-Power supply terminal block (use BX cable), 37-Not more than 15 feet long 2 inch minimum pipe size slope 1/4 inch per foot minimum



OUTLINE drawing of front and side view of Hotpoint sink and dishwasher, indicating detailed and over-all dimensions of unit including backsplasher, to assure proper installation in kitchen



ROUGHING-IN dimensions for installation of Hotpoint sink, dishwasher and Disposall shown at left. H & C-12 inch sink bot and cold water line openings. D-11/2 inch sink drain line opening. E-Standard electrical connection box. H-Dishwasher hot water line opening; must be reduced to 30 inch before entering dishwasher. D-11/2 inch dishwasher drain line opening



PARTIAL drawings showing dimensions of through-the-floor or wall roughing in connections for dishwasher, sink, and disposer. All dimensions are taken to the center line. Pipe sizes: trap and drain, 11/2 inch I.D.; "hot" line 1/2 inch I.D. Plumbing and electrical connections must conform to local codes. Run a separate circuit with separate fuse box and 20-ampere fuses to junction box provided in cabinet. Use only on 60-cycle 115-volt alternating current



### The Built-In Electric Range You Can Put in Any Kitchen!

Costs NO MORE than an ordinary range!

More and more home-buyers and home-builders today are demanding the advantages of built-in cooking units.

Presteline meets this demand with a new built-in electric range that offers every luxury feature at a moderate price. Low in initial cost. Presteline ranges are also easy and inexpensive to install . . . skill-

fully designed to fit standard

cabinetry . . . so compact and space-saving that surface cooking elements can be installed even on a 15" counter with only 4" depth clearance re-quired. Presteline Built-in Units offer new ease and flexibility in kitchen planning.

They create new kitchen beauty through exclusive decorator colors and new non-tarnish metal finishes.

### what makes Presteline DIFFERENT



Eye-level AUTOMATIC OVENS

Individualized

COOKING TOPS



### years-ahead luxury features

- Fastest Pre-heat 3-Position Oven Reck Automatic Oven Cantral

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  "Minute Mindor"
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PRESTELIME

the new Presteline Built in Range Units

STATE

**APRIL 1952** 

377

### Cool, Odorless Kitchens Catch the Buyer's Eye

IN THESE days of air conditioning, a well-ventilated kitchen in a new house is a definite selling advantage. Today's housewife responds to the suggestion that she need not have cooking odors carried all over the house, and that kitchen ventilation saves cleaning effort and frequent redecorating.

For this reason, many builders are installing built-in ventilating fans in the kitchens of their new units. There are definite rules governing these installations, however. The mere presence of a ventilating fan in the kitchen does not mean that it will do an adequate job of changing the air and removing objectionable odors and

The best location for the kitchen ventilating fan is directly over the range. This is the point at which cooking odors, steam, grease globules and so on are emitted. If carried away from as close to their point of origin as possible, the ventilation will be the most satisfactory. If the range is against an outside wall, it is relatively easy to build in a fan above it, discharging the air directly to the outside.

If the range cannot be against an outside wall, it should be close to one so that the fan can be mounted only a short distance from it. Often, a soffit above the range can be used as a conduit to the outside wall, the fan being installed in the soffit just over the range.

It is preferable not to install cabinets over the range because their interiors become too hot. There are some types of kitchen ventilators, however, that can be concealed in cabinets, the lower part of the cabinet acting as a hood which catches virtually all fumes. Fans mounted through the walls have adjustable sleeves to accommodate various wall thicknesses. Suggested sizes are an 8-inch fan for small kitchens. 10-inch for medium size and 12-inch for very large kitchens.

### Hot Water Supply Must be Adequate

**B**UILDERS are changing their ideas of hot water installation capacities. The increasing use of automatic laundries, automatic dishwash-

ers, and the more frequent bathing made convenient by multiple baths, has changed previous conceptions about the size of storage tank and heating capacities necessary for today's new homes.

A 20-gallon storage unit no longer is recommended, even for a small home, because it is inadequate if an automatic laundry is installed. The house cannot have adequate hot water supply while the washing is being done. These smaller capacity units now usually are used only where there are two heaters instead of one—a practice growing among builders of the rambling, ranch style dwelling where long pipe runs are necessary if only a single heater is used.

There is a rough formula for determining the size water heater needed in a home. Tank size, plus rate of recovery, equals peak demand.

One variable in this equation is the "peak demand," How can it be determined?

The automatic laundry requires from 30 to 40 gallons of hot water per hour. An automatic dishwasher will use about 10 gallons per load. A tub bath requires from 15 to 20 gallons. A shower takes from 10 to 15 gallons.

Non-automatic washing uses from 12 to 16 gallons of hot water per wash, and an additional 6 to 8 gallons if warm water is used for rinsing, as it usually is. Manual dishwashing takes about 3 gallons for an average family, or you can figure a gallon per person. Rinsing dishes under the hot water faucet will take another 6 gallons.

Recovery rate can be determined roughly by taking the B.T.U. input of the heater and dividing by 1.000. Thus, a heater with input of 25,000 B.T.U.'s will have a recovery rate of 25 gallons per hour. In winter, when incoming water may be colder, a higher degree rise in temperature is, of course, necessary.

In general, rough guides to the size water heater needed are: for houses with one bath and one or two bedrooms, a 30-gallon capacity; one bath and three or four bedrooms, or two baths and one or two bedrooms, 40 gallons capacity; two baths and four or five bedrooms, or three baths and three bedrooms, a 50 gallon capacity.

ECONOMICAL ACHIEVE-MENT of beauty combined with efficiency in a modern kitchen is essential. It is essential because national publicity and advertising in consumer publications have educated housewives on the basic principles of the compact, scientifically-planned women's work centers now available.

## BUILT-IN RADIOS WILL SELL YOUR HOMES!

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- Fits in Standard 4" Partition
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## of the 50's GETS ENTHUSIASTIC ACCLAIM IN OMAHA

Finnman-Dillon Company, Omaha, Nebraska General Contractors

R. E. Finnman Designer

> J. L. Brandeis Company Interior Decorators and Furnishers

THE Omaha Hotpoint House of the 50's is the latest in a series of electrified houses being erected in strategic cities throughout the country to demonstrate how builders and manufacturers of home equipment can team up in a practical promotion to reach prospective home buyers.

Thousands of visitors inspected the home during "open-house." A completely coordinated advertising program, which received excellent cooperation from

the newspaper, radio and television stations, and civic interests, gave the house maximum exposure. And, of course, Finnman-Dillon Company, the builders, came in for a full share of this favorable publicity.

The most modern of electrical appliances and equipment is incorporated in this Hotpoint House to make living easier and more pleasant. Approximately 30 Omaha supply outlets, many of them handling nationally advertised equipment, tied in with this highly successful promotion.

The national activity is being sponsored by Hotpoint Inc., and activated locally by distributors, builders, the utility company, and suppliers. More and more Hotpoint Houses of the 50's will be built across the nation. Their object is to set the pace for better living in the communities in which they are built, and to influence the public to buy or to build better homes completely equipped and completely electrified. For more information concerning a Hotpoint House of the 50's in your city, write the Builders Division, Hotpoint Inc., 5600 West Taylor Street, Chicago 44, Illinois.

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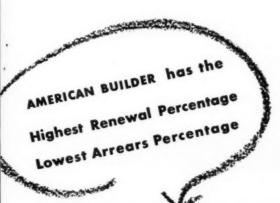
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LUMBER is graded according to established grading rules and each piece usually carries a grade mark designating the species and the grade quality. These standardized and recognized grading practices make it possible for the lumber buyer to specify grade desired and be assured of uniformity in his lumber purchases.

No definite degree of hardness divides the hardwoods and softwoods. Many hardwoods are actually softer than the average softwood because the division reference is based upon a botanical classification. The general botanical classification designates that hardwoods come from broad-leaved trees, which shed their foliage annually, while softwoods come from needle bearers, which retain their foliage for more than a year. Practically all construction lumber is softwood.

### Establishing Standards

The fact that no two trees are identical necessitates the grading of each piece of lumber that comes from each log. Specific grade and size standards have long been established by the American Lumber Standards, formulated after consultation between officials of the U. S. Department of Commerce and representatives of lumber manufacturers, distributors, wholesalers, retailers, engineers, architects and builders.

Softwood lumber is divided into three main groups on the basis of the uses to which it is to be put. These groups are (1) yard lumber; (2) factory, shop and box lumber; and (3) structural timbers. Yard lumber is less than five inches in thickness and is intended for general purpose building. Factory or shop lumber is selected for further manufacture. Structural timbers are five inches or more in thickness and width. General grading classification table is shown on page 384.

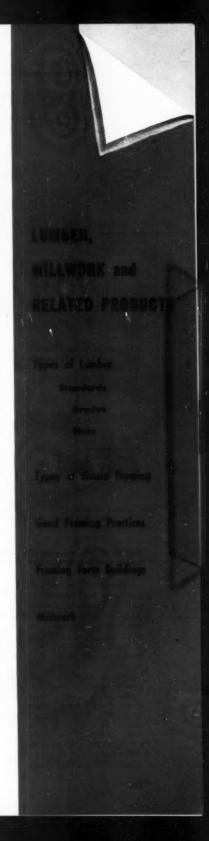
### Select and Common

Ordinary construction lumber is graded on the basis of quality into two main classes—select lumber and common lumber. Select lumber has but very few minor objectionable characteristics, is smoothly finished and can be used as a whole for finishing purposes or where large, clear pieces are required. The selects are divided into two main groups: A and B grades, suitable for natural finishing, and C and D grades, which have blemishes somewhat greater than those in the first class, but blemishes which can be covered with paint.

Common lumber may contain numerous characteristics which do not permit its use for finishing purposes but which still permit its use for general utility and construction purposes. The two principle classifications here are boards and dimension. Boards are graded as No. 1, No. 2, No. 3, No. 4 or No. 5. These grades are not equivalent in all species. Dimension is graded as No. 1, No. 2 or No. 3. The characteristics of these various grades are described briefly in the table on yard lumber.

### Size Standard

Lumber sizes are based on its rough, green dimensions. For example, although described as 4 inch by 4 inch, which is the "nominal" size,



### GENERAL CLASSIFICATION OF SOFTWOOD LUMBER

	(Yard lumber (lumber	(Finish (less than 3	Inches thick and 12	Grades A select B select
	less than 5 inches thick, intended for general building pur- poses; grading based on use of the entire	Boards (less than 2 inc	width)	C select D select No. 1 boards No. 2 boards
	piece)	in width)	Planks (2 inches and	No. 4 boards No. 5 boards
			thick and 8 inches and over wide)	No. 2 dimension No. 3 dimension
Softwood lumber (this classifica- tion applies to		Dimension (2 inches and under 5 inches thick and of any width)	Scantling (2 inches and under 5 inches thick and under 8 inches wide)	No. I dimension
dressed lumber; sizes given are nominal)	Structural material (lumber 5 inches or over in thickness and		Heavy joists (4 inches thick and 8 inches or over wide)	No. I dimension
	width, except joist and plank; grading based on strength	over wide) Beams and stringers (		
	and on use of entire	over wide) Posts and timbers (6 b	by 6 inches and larger	1
	pacey	Factory plank graded for door, sash, and other cuttings 1	Factory clears up-	Nos. 1 and 2 clear factory No. 3 clear factory
	Factory and shop (grading based on area of piece suitable	inch to 4 inches thick and 5 inches and over wide	Shop lower grades	No. 1 shop No. 2 shop No. 3 shop
	for cuttings of certain size and quality)	Shop lumber graded for general cut up	northern and western pine, and Pacific coast woods)	Select Shop
		purposes	Allthicknesses (cypress, red- wood, and North Carolina pine)	Tank and boat stock, firsts and seconds, selects, No. 1 shop No. 2 shop, box

THE ABOVE CLASSIFICATION OF SOFTWOOD LUMBER gives the grade names used by lumber manufacturer associations for various classes of material under the lumber standards



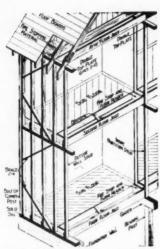
THIS TABLE gives the general requirements of the various grades as used by lumber manufacturer associations under the American Lumber Standards

a piece which has been dried and dressed on four sides is actually 35% inch by 35% inch. The first figure quoted in lumber dimensions indicates nominal thickness; the second, width; and the third, if there is one, is the length. Lengths on common lumber normally are in multiples of two feet.

Common boards, or boards, are a general purpose item available at all lumber yards in one or more of the kinds of wood most frequently used in building. The standard nominal widths are 4, 6, 8, 10, 12 inches or wider. Although the grades shown are from No. 1 through No. 5, the very lowest grades of any species are almost never available in retail yards.

Their use is mainly for special industrial purposes. Boards are produced with square edge. dressed and matched (tongue-and-groove), or with a shiplap joint. The largest uses for common boards are subfloors, sheathing, roof boards, barn boards, rough siding and concrete forms.

### Dimension Lumber



THE MODERN BRACED FRAME is in every way adaptable to modern needs, but it must not be slighted during assembly

sion thicker than two inches and longer than 20 feet is made but it is used in comparatively small quantities. Basically dimension lumber is graded to fill the requirements of framing for buildings.

### House Framing Types

Three types of house framing are most prevalent in modern usage: (1) Modern Braced Frame (2) Balloon Frame, and (3) Platform Frame. All three are modern and accepted framing methods. The platform frame is the most popular and believed to be the fastest and safest form. The platform frame is often referred to as the western framing method, or western frame.

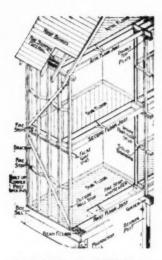
### Good Framing Practices

The use of good framing practices cannot be over emphasized. Enough supporting members of proper size must be used, not only to support ordinary loads but to impart sufficient strength to the entire structure. Good framing practices are necessary to give floors and entire structure good stiffness; a most important factor to a well built house. On these pages are shown detail drawings for joists, bridging, subflooring, studs, openings, framing around chimneys, sheathing, roof framing, trussed rafters, fire-stops and partitions.

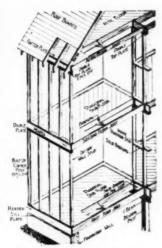
### Stairway Framing

Stair layout and building is a phase of construction confined largely to millwork manufacturing firms who employ professionals to help builders with these problems.

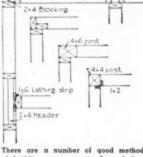
Never underestimate the value of



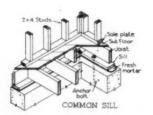
BALLOON-TYPE OF FRAME for twostory houses is another modern and accepted type of framing structures



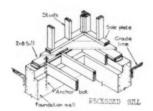
PLATFORM OR WESTERN FRAME is the most popular and is believed to be the fastest and safest form of framing



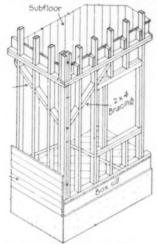
There are a number of good methods of building corner posts. Any of those above are good. Note also that two partition starters are shown in this drawing



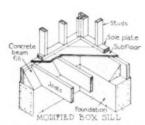
Popular type of sill construction, particularly where high winds prevail



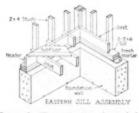
This was developed for use where the house must set close to the grade



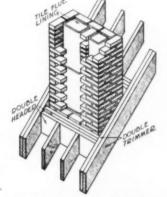
Wherever cut-in bracing is used to obtain rigidity, it is of vital importance that cuts be accurate and nailing adequate



Used where low winter temperatures prevail. Not good for moist climates



Type of sill construction favored by early builders and still in use



A masonry chimney, regardless of its location, must be self-supporting and independent of the house framing

good framing around stair openings. Doubled and sometimes tripled joists with well-selected, properly fitted and adequately fastened headers are of utmost importance to achieve strength and rigidity. Firmly secure stair horses against header of stair opening. In no case hang them from it

It is recommended that risers be 6¾ to 7 inches and treads be 10½ to 10¾ inches. Slight variations in

these dimensions may be made, but in all cases have tread and riser measurements total about 17½ inches. Between 30 and 36 degrees is the proper, safe, over-all stair flight angle. The recommended height for permanent handrails is 36 inches above the treads. Minimum headroom distance between nose of treads and soffit over stairway, in a line parallel with the horses, should be 6 feet, 8 inches for (Continued on page 392)

### ALLOWABLE SPANS FOR DOUGLAS FIR AND SOUTHERN YELLOW PINE FLOOR JOISTS

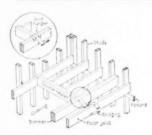
### Dougles Fir

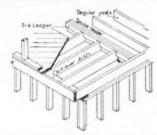
DRESSED LUMBER, Includes 848 and 82E

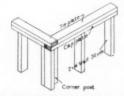
Southern Pine

DRESSED LUMBER, Includes 848 and 82E

Nominal size (inches)	Spacing c. to c.	Struc Fran	00-f lect ctural ming tc.	Fran	o. 1 ming, ata, ank	Frai	o. 2 ming, ists, ank	No. 3 Framing. Jointa, Plank		Nominal size (inches)	Spacing c. to c.	de 2-i	n. 1 nse nch nsion	2-i	n. 1 neh naion	No. 2 dense 2-inch dimension		No. 2 2-inch dimension	
2 1 6	In. 12 16 20 24	Ft. 11 10 9 8	In. 3 2 6 11	Pt. 111 100 9 8	In. 3 2 6 11	Ft. 11 10 9 8	In. 3 2 2 4	7 6	7 7 10 4	2 я 6	In. 12 16 20 24	Pt. 11 10 9 8	In. 3 2 6 11	Ft. 11 10 9 8	In. 3 2 6 11	Pt. 11 10 9 8	In. 3 2 6 11	Pt. 11 10 9 8	3 2 2
2 x 8		15 13 12	0 8 8	15 13 12 11	0 8 8	15 13 12 11	0 8 2 2 2	11 10 9 8	8 1 0 3	2 x 8	12 16 20 24	15 13 12 11	0 8 8 11	15 13 12 11	0 8 8 11	15 13 12 11	0 8 8	15 13 12 11	8 2 2
3 x 8	12 16 20 24	17 16 14	8 0 11 0	17 16 14	8 0 11 0	17 16 14	8 0 11 0	14	10 10 6	3 x 8*	12 16 20 24	17 16 14 14	8 0 11 0		**		**		
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3 x 10	12 16 20 24	22 20 18 17	4 3 10 9	22 20 18 17	4 3 10 9	22 20 18 17	4 3 10 9	20 17 15 14	1 6 8	3 : 10*	12 16 20 24	22 20 18 17	4 3 10 9	**	**	**	**		***
2 x 12	12 16 20 24	23 20 19 18	0 10 3 3	23 20 19 18	0 10 5 3	23 20 18 17	0 10 8 1	18 16 14 13	7 1 5 2	2 * 12	12 16 20 24	23 20 19 18	0 10 5 3	23 20 19 18	0 10 5 3	23 20 19 18	0 10 5 3	23 20 18 17	10

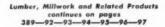


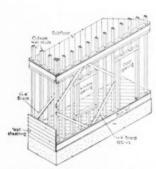


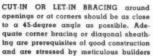


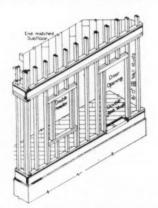
CAP AND TIE PLATES should be used for all exterior walls and the corners lapped and nailed with three 16 penny nails

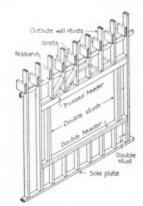
WHERE EXTRA LOADS ARE PLACED ON JOISTS (left above) double headers and trimmers must be accurately fitted and natiled in place. When framing for a second-story overhang (right, above) a 2x4 ledger should be securely natiled to the double joist to receive notches in cantilevered joists used to support the overhang. Where overhang is at the end of joists, they extend beyond the wall the required distance











ACCURATELY FITTED DOOR AND WINDOW FRAMING is an indication of careful building for permanent stability. Where wide openings occur in the framing, extreme care should be taken in header construction because so much of the load above must be carried on these members. The illustration above at right shows one good method. Note that the diagonal members are carefully fitted and placed for rigidity



owo



and processing plant, Arcata, California. Above: Redwood stacked in Simpson's 15-acre drying yard.

### DOUGLAS FIR PLYWOOD

The QUALITY of Simpson Plywood, manufactured in the center of the Douglas Fir country, is known throughout the major distribution areas. All Simpson Douglas Fir Plywood is trademarked and carries DFPA grademarks.

### **DOUGLAS FIR AND HEMLOCK DOORS**

Simpson Fir Doors, manufactured from mature Douglas Fir, are available in all areas in all FDI grades, all specifications and all designs including the Simpson Flush Door. The increasingly popular Simpson Western Hemlock Door is manufactured in all FDI patterns.

### DOUGLAS FIR AND HEMLOCK LUMBER

From our forests and mills all grades and sizes of old-growth green Douglas Fir and Western Hemlock lumber is available, especially to the water-borne markets on the Atlantic and Gulf coasts.

Dry finished redwood lumber is cut and manufactured in all standard patterns for national distribution. Green redwood lumber is available for limited distribution.

### **ACOUSTICAL PRODUCTS**

Simpson Acoustical Tile is available through authorized acoustical contractors and Simpson Noisemaster Acoustical Tile through regular distributors and dealers. These fine acoustical products are preferred because of high sound absorption and exclusive Hollokore drilled perforations.

### INSULATING BOARD PRODUCTS

For maximum utilization of our timber resources, we convert small, sound wood pieces from our mills into Insulating Board Products including Interior Finish Board, Plank and Tileboard, Sheathing and Lath, Roof and Cold Storage Insulation and Acoustical Tile.

NOTHER manifestation of Simpson Logging Company's continuous growth and progress is the completion of a modern new drying, storage and processing plant for redwood lumber at Arcata, California. Here, redwood from Simpson's timber holdings and sawmill at Klamath, California, is prepared for shipment.

This expansion is part of a steady growth which started in 1895, the year the company was founded. Simpson's logging, milling and manufacturing activities contribute to the stability of a large segment of the Pacific Northwest and Northern California which depend upon forest products for survival.

By means of good forest management, maximum utilization of timber resources and continuous reforestation, we can assure our customers of deliveries of forest products, manufactured to meet modern requirements, for many years to come.

### SIMPSON LOGGING COMPANY

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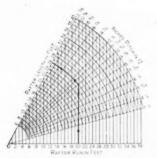
Metric Interchangeable Tables Mensuration. Various En gineering Formulas.

### USEFUL INFORMATION, RECEIPTS, ETC.

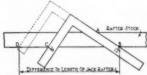
Miscellaneous Data, Architectural Orna-mentation. Various Sizes and Dimen-sions, Miscellaneous Materials, Various mentation.

GLOSSARY OF ENGINEERING, ARCHITEC-TURAL, AND TRADE TERMS

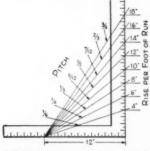
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Enclosed find \$10 for which send me RICHEY REFERENCE HANDBOOK, book entirely satisfactory. I will mail it of receipt and you will refund my \$10.	lí I do no	t find th
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TO FIND THE RAFTER LENGTH when its run and pitch are known. follow the vertical line from the run to its intersection with the radial line of the pitch. From the intersection follow the curved line to the length. The diagram also may be used to determine the run when the length and pitch are known, or to determine the pitch when the length and run are known. Example: For a run of 20 seet and a pitch of 10 in 12, the length of the rafter is read directly from the diagram as 25 feet



THE LENGTH OF JACK RAFTERS. regardless of their spacing, can also be determined by using the steel square. Hold the square to the stock with 12 inches, the unit of run, on the blade and the rise per foot on the tongue, as shown in the drawing. Mark along the line A.B. Then slide the square on the stock until the figure representing the spacing of the jack rafter touches the point B. The distance D to B will be the difference in length of the jack rafter



"PITCH" is the amount of slope of a roof.
"Rise" is the vertical distance the ridge is above the plate. The unit of measurement is one foot or 12 inches. To find the pitch, divide the rise by the span of the building. Ratter run is one-halt the width of the building. The drawing above shows a number of ratter pitches in relation to the steel square

### Redwood in the News



Structures for outdoor living compete with the floral charms of the garden when set in the natural beauty of redwood.

This durable material is peculiarly adapted to yard and garden improvements such as plant boxes, retaining walls, children's play structures, floral shelters, benches, and tables. Schemes for these and other outdoor living items may be had by writing for "Garden Ideas" to the California. Redwood Association, 405 Montgomery St., San Francisco, 4, California.



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the farm market...

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WEYERHAEUSER is helping to develop more profitable business in the farm market with a powerful selling program . . . and if you build for that market you will want to talk to your dealer about it.

This selling program is built around the 4-Square Farm Building Service which contains designs, blueprints, and material lists for 16 modern farm homes . . . and 171 service buildings and equipment items. It is available for your use, without charge, at the office of your 4-Square Lumber Dealer.

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See your Weyerhaeuser 4-Square Lumber Dealer soon. Go over this program with him. It means more profitable farm business for you...month after month.

### WEYERHAEUSER SALES COMPANY

ST. PAUL 1, MINNESOTA



Farm Building Service

Rise in Inches per Foot of Run	Equivalent Pitch	Common Rafter	Hip or Valley Rafter
3"	1/8	.515	.719
4"	1/6	.527	.728
5"	5/24	.542	.738
6"	1,1	.559	.751
7"	7/24	.579	,766
6" 7" 8"	1/3	.601	.783
9"	3 4	.625	.801
10"	5/12	.651	.822
11"	11/24	.678	.844
12"	1/2	.707	.867
13"	13/24	.737	.892
14"	7/12	.768	.918
15"	5 %	.8	.945
16"	2/3	.833	.973
17"	17/24	.867	1.
18"	3/4	.901	1.03
19"	19/24	.936	1.06
20"	5/6 7/4	.972	1.09
21"		1.01	1.13
22"	11/12	1.04	1.16
23"	23/24	1.08	1.19
24"	Full	1.12	1.23

TO FIND THE LENGTH OF A RAFTER for any roof pitch, multiply the span by the factor on the same horizontal line in the column marked "Common Ratter" or "Hip or Valley Rafter." as the case may be. The lengths obtained by this table do not include a projection over the plates. If rafters are to be continued over the plate, add twice the horizontal cornice projection to the span before multiplying by the factor above. If the rise per foot of run contains a fractional part of an inch, use the next larger number of inches

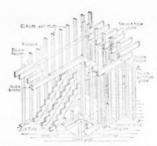
### ALLOWABLE SPANS FOR YELLOW PINE AND DOUGLAS FIR RAFTERS

(First table below is for Yellow Pine and the second is for Douglas Fir)

[Roof slopes greater than 3 in 12. Span is the actual length of the rafter between the plate and the ridge or an intermediate support]

Nominal nize (inches)	Spacing	1600-f Select Structural Framing, etc.					i. 1 F			No. 2 Framing, Joists, Plank, etc.				No. 3 Framing, Justs, Plank, etc.				
	c to c.		ght		avy		ght fing		avy fing		ght		av) fing	Li	ght	Hen		
	In.	Ft	In.	Ft.	In.	FE	In.	Ft.	In.	Ft.	In.	FI.	In.	FI.	In.	Ft.	In	
2 x 4*	12	1.5	1	12	.65	9.	5.	8.7	7 6	7	ti.	6	N	ik	2	4	7	
	16	12	3	10	11	7	5.	7	65	6	fi.	3	9 2	- 4	3	.5	11	
	20	10	11	- 19	9	7	6	6	8	5	10	1	2	4	0	3		
	24	10	0	×	11	6	10	6	1	5	- 4	. 4	9	3	7	3	-	
2 x 6	12	21	11	19	6	20	10	18	7	18	2	16	2	11	N	10	4	
	16	IN	11	16	11	18	1	104	1	15	9	14	0	10	1	9 8 7		
	20	17	1	13	O	16	2	14	5	14	1	12	6	9	0	×	- (	
	24	1.5	14	13	0	14	9	13	2	12	11	11	5	8	3	7	4	
2 1 8	12	29	3	26	-	27	10	24	10	24	3	21	7	17	11	16	4	
	16	25	- 3	22	7	24	7	21	5	21	0	1%	H	15	6	1.4	- 10	
	20	12.3	7	20	2	21	7	1.58	2	18	10	16	9.	13	11	12	4	
	24	20	8	18	4	19	8	17	- 6	17	2	15	3	12	N	11		
2 x 10	12	37	1	33	0	3.5	3	31	5	30	*	27	4	24	6	21	10	
	16	32	o.	28	ŧi.	30	6	27	2	211	7	23	H	21	2	18		
	20	28	14	2.5	7	27	3	24	4	23	9	21	2	19	0	16	- 1	
	24	26	2	23	5	24	11	22	2	21	N	19	4	17	4	15		

Nonunal aige (inches)	Spacing	1900-f Select Structural Framing, etc.				No. 1 Framing, Joints, Plank, etc.					2 F	Plan		No. 3 Framing. Joists, Plank, etc.				
	c. to c	Lig	the fing	Her	ivy fine		ght	Her		Lig		Her	avy hng		ght fing	Hea		
2 1 4*	16 20 24	Ft. 13 13 11 10	In. 4 4 11 11	Fr. 13 11 10 9	In. 8	F1. 10 8 8	In. 4	Fr. 9 7 7 6	In. 2 11 1 6	Fr. 7 6 6 5	11 10 2 7	Ft. 7 6 5 5	In. 0 1 5 0	Ft. 5 4 4 3	In. 2 5 0 7	Ft. 4 3 3 3 3	In 7	
2 x 6	12 16 20 34	23 20 18 16	10 7 7 11	21 18 16 15	3 3 4 0	20 18 16 14	10 1 2 9	18 16 14 13	7 1 3 2	18 15 14 12	2 9 1	16 14 12 11	2 0 6 5	11 10 9 8	8 1 0 3	10 9 8 7	4 0 4	
2 x 8	12- 16- 20- 24	31 27 24 22	11 7 7 6	28 24 22 20	5 7 0 0	27 24 21 19	. 10 2 7 8	24 21 19 17	10 5 2 6	24 21 18 17	.3 0 10 2	21 18 16 15	7 8 9 3	17 45 13 12	11 6 11 8	16 13 12 11	10	
2 x 10	12 16 20 24	40 34 31 28	5 10 3 6	35 31 27 23	11 10 5	35 30 27 24	3 6 3 11	31 27 24 22	5 2 4 2	30 26 23 21	8 7 9 8	27 23 21 19	4 8 2 4	24 21 19 17	6 2 0 4	21 18 16 15	11	



STAIRWAYS SHOULD BE FRAMED with not less than three horses and of stock wide enough to leave 3½ inches of material behind each cut. Landing must be carefully supported and the stair braced against thrust. Accurately cut horses or stringers are important

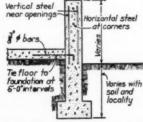
(Continued from page 385)
main stairs and 6 feet, 4 inches for
basement and service stairs.

For complete information on all stairway millwork, including all stairway, parts factory completed, see zeindozes, doors, frames, and stairs section of this directory issue.

### Framing Farm Buildings

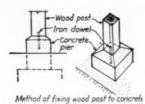
Regardless of the size, type or architectural style of modern frame farm service structures, they must be erected to meet three major requisites: (1) to stand permanently plumb; (2) to withstand maximum wind pressures ordinarily experienced in the area, and (3) to retain an attractive appearance.

The size and depth of footings depend on soil conditions and the loads to be carried. In many cases it is not the vertical compression loads which put the biggest strains on barn foundations, but the pressure from



IN ALL TYPES OF BUILDINGS, including farm buildings, it is essential that the foundation be extended below possible frost penetration, even though firm bearing soil is found at a shallow depth. This will prevent upheaving by freezing temperatures

No. 1 and 2 studding and blocking grades. Light Roofing: Material weighing, in place, 5 pounds or less per square foot. Heavy Roofing: Material weighing, in place, over 5 pounds per square foot.



INTERIOR POSTS IN FARM STRUCTURES will under certain conditions, move laterally or sideways. An iron pin or dowel embedded in the post footing and running into the post itself will prevent any possibility of movement to put building eff plumb

the outside pushing in or from the inside pushing out. Earth or manure is often piled against a wall in a spot where such pressure can cause a failure. A shallow footing can fail because of excessive moisture or be weakened by consistent stamping and tramping of animals.

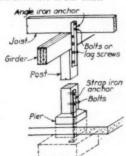
Every permanent farm structure must be anchored solidly to its foundation. Barns do not blow down —they blow up. They are lifted off foundations, or roofs and sides blow off and out. The most common reasons for barn failures are (1) the nature of wind pressures; (2) the method used in making joints; (3) improperly laid masonry block foundations which fail; (4) failures at points of anchorage. Drawings on these pages show some recommended anchoring methods,

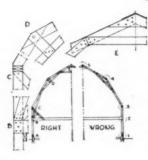
Gambrel roof failures occur primarily at sill, plate and ridge—wherever toenailing is usually used. It is safer to lap members past one another and put nails, bolts or fastenings in shear. The ridge point can be further reinforced by a light strap iron over the rafter junction.

#### Good Joints

Good joints are so important in farm buildings that every builder should know the relative merits and strength of the principal methods of making wood joints. See diagrams on these pages which show the relative strength of joining methods. Further information regarding Correct Frame Nailing will be found elsewhere in this issue.

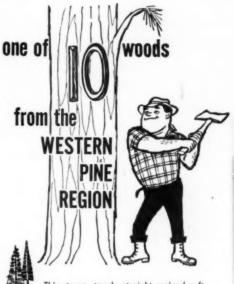
TIEING ALL FRAMING MEMBERS TOGETHER securely is essential in farm structures. Where a load-bearing post supports a girder on which either joists or rafters rest. an angle iron or similar device should be used to the the post, girder and members





SOME SUGGESTIONS for improving stud and joist framing are shown at the left. To eliminate toengiling at the common points of failure at sill, plate and ridge, it is always wise to lap members past one another and put nails. bolts or fastenings in shear. The ridge joint may be further reinforced by a light strap iron over the rafter junction, shown in Section E above

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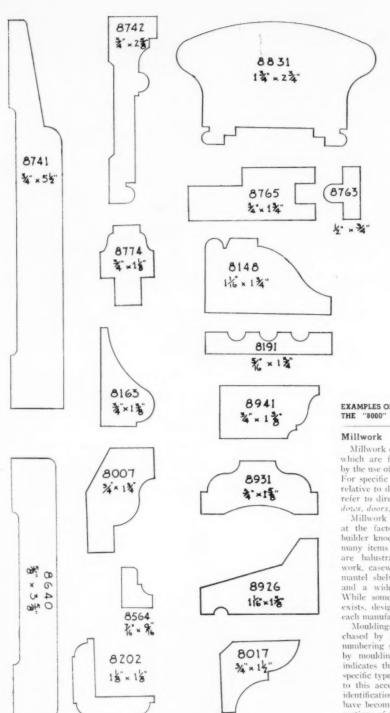
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LIKE 8120 3.8 者"×14" 8 × 18" 者 \* 1香 者 - 13 老 × 24 8166 花×岩 8407 4 ×14 **EXAMPLES OF STOCK MOULDING FROM** 

#### THE "8000" SERIES OF STANDARDS

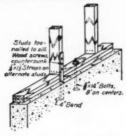
Millwork consists of building items which are fabricated at the factory by the use of some type of machinery. For specific information on millwork relative to doors, windows and stairs refer to directory section titled windows, doors, frames, and stairs.

Millwork may be either assembled at the factory or delivered to the builder knock-down. Included in the many items referred to as millwork are balustrades, scroll work, bent work, casework, cupboards, mantels, mantel shelves, columns, colonnades and a wide variety of mouldings. While some standardization of size exists, designs may be unique with each manufacturer.

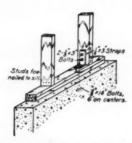
Mouldings, however, can be purchased by reference to a standard numbering system, generally adopted by moulding manufacturers, which indicates the size and design of the specific type of moulding. In addition to this accepted standard system of identification, certain stock mouldings have become standard within certain sections of the country. For example one might purchase a NY 116 in New York City or a DC 98 moulding in Washington, D. C.

Shown on these pages are some accepted standard stock mouldings from the "8000" series standard.

#### Methods for Anchoring Frames to Foundations In Farm Buildings



Here, a \(^14x1\)^12-inch strap iron is bent to form an L shape. The foot of the L and part of the leg are imbedded in the concrete at the time the foundation is poured. The upper part of the leg, which has been previously drilled with holes, is fastened securely to the stud with large wood screws or lag screws. The double sill is anchored to the foundation in the usual manner and all the studs are toenailed to the sill. The steel straps must be carefully lined up and properly spaced



Above, anchor bolts are placed at sixfoot intervals in the foundation wall as it is poured. A 12-inch length of 1/4x3-inch strap iron is bent to form an L-shape bracket 4 inches long in one direction and 8 inches in the other. The 4-inch lea is drilled to fit over the anchor bolt and the 8-inch leg is drilled for two %-inch bolts by which it is fastened securely to a stud. Every third stud is held down in this manner and the others are toengiled to the sill in the conventional manner. Existing buildings can be anchored in this manner by using lag screws to fasten the straps to the sill, provided the sill is well anchored to the foundation. In pigce of the L-shape bracket shown, a T-strap might be screwed to the inside of the studs and sill

(Continued on page 396)

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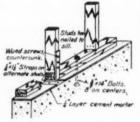
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same size as used for the studs can be placed between pairs of studs 8 feet apart along the foundation. Anchor bolts are placed in the foundation 8 feet on centers and anchor the headers as well as the wall securely to the foundation. The studs are toenailed to the sill and spiked to the ends of the header. The header should be separated from the sill by blocks spaced widely enough to prevent splitting the ends of the studs when spiking them to the headers. By using lag screws to fasten the headers to the sill, this method can be used to strengthen buildings already built if the sill is well anchored to the foundation

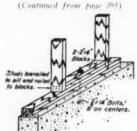


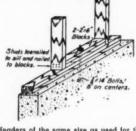
1/4x11/2-inch iron straps are bent in an L-shape to extend across the underside of the sill and up the side of the stud far enough to permit fastening them to the stud with large wood screws or lag screws. The sill is laid on a bed of cement mortar and secured to the foundation with anchor bolts spaced eight feet apart along the wall. The iron straps are inserted at four-foot intervals when the sill is laid

Drawings and data courtesy Kansas State Colleg



VARIOUS TYPES OF JOINTS discussed text on page 393. At left CITE 2x6's fastened with the common nailed joint; next are 2x4's fastened with two 12-inch bolts; the third illustrates a timber connected joint with one 212-inch ring imbedded between two 2x4's. The fourth illustration shows a glued joint with two 2x4's lapped eight inches. This latter joint tested by far the strongest





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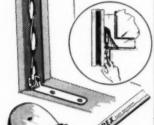


ance from rust. SPIREX gives you quiet operation with years and years of trouble-free servicel

#### Smooth

Patented spring construction with separated coils eliminates rasp and friction makes windows slide smooth-asvou-please for the life of the building.

Tension can be adjusted after balance is installed for perfect lifting power according to sash weight. Requires only 4-5 turns for average sash.



Manufacturers of precise clock spring balances since 1888.

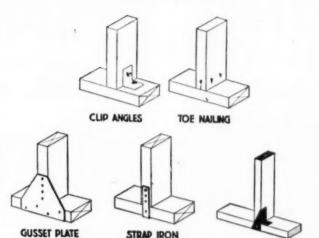
telescope carton has com plete unit and accessories for the job.

				booklet	
Spirex	and	Caldwe	II top	e balan	es.
NAME	_				

COMPANY ADDRESS

CALDWELL MANUFACTURING CO. 68 COMMERCIAL ST., ROCHESTER 14, N.Y.

#### FOUR METHODS OF IMPROVING TOENAILED JOINTS



Conventional toenailed joint is on the right, top line. The Timber Engineering Company's Trip-L-Grip anchor, made in six different shapes, is at the right in bottom row



#### Quality Millwork

COLONIAL CORNER CABINETS KITCHEN UNITS Base and Wall Cabinets FIREPLACE MANTELS COLONIAL DOOR ENTRANCES DOOR BLINDS WINDOW BLINDS WOOD LOUVRES

GABLE LOUVRES GABLE SASH BASEMENT WINDOW

UNITS

Packaged FOR YOUR CONVENIENCE and PROFIT



To top grade materials and superior workmanship. GREGG adds sturdy packaging for easy storage and handling and to assure that every piece reaches the job undamaged, ready for installation.



& SON, INC.

MILLWORK OF QUALITY SINCE 1719

# TWO REASONS

#### FOR SPECIFYING



## RO-WAY GARAGE DOORS

#### for your Residential, Commercial and Industrial Jobs

Again Ro-Way sets the pace in garage door improvements. Ro-Way engineers believe that along with the great strides made by the Automotive Industry there should also be constant advances in the Doors for buildings that house automobiles, trucks and buses. So in addition to Power-Metered springs, Double-Thick Tread track rollers, Crow's Foot outer bearing supports and many other exclusive Ro-Way developments you are now offered—

TAPER-TITE CLOSURE—Vertical tracks taper away from jambs at a pitch of  $\frac{1}{4}$  per door section; this "taper", or angle, is the foundation of the Re-Way Taper-Tite Closure.

SEAL-A-MATIC HINGES—of graduated height guide the closing door tightly against side and head jambs; these same hinges immediately free the opening door from jambs to provide easy, frictionless operation.

You will find it well worth while to contact your nearby Ro-Way distributor. Look in the yellow pages of your telephone directory or write us.

For time-saving, intelligent, cooperative service on all garage door jobs, you'll find the Ro-Way distributor a good man to know. Remember he is one of a national network of hand picked distributors giving dependable satisfactory sales and installation service.

ROWE MANUFACTURING CO., 701 Holton St., Galesburg, III.

there's a Ro Way for every Doorway!







DETACHED GARAGE of this one-story ranch-type house is made a part of the overall arrangement by a connecting breezeway. The garage doors are placed off-center of front wall to provide for workbench on side wall. Roof ridge is centered on door thus extending the roof line on one side and purposely establishing a lower eave line

UNDER present conditions of highcost construction, garages have
come in for a certain amount of
neglect. Roughly 50 per cent of
houses built for sale over the past five
years have been built without garage.
For low-priced homes built for sale
the garage has almost entirely disappeared; and for the medium-priced
house the builder will often include a
carport, a skeleton shelter which the
owner in a cold-weather area can
later fill in for more adequate protection.

When a garage is included as part of the job, special care should be taken with its planning. Garages should be thought of not only in terms of car protection and storage, but as utility space where equipment used in maintaining grounds and building may be stored, where extra-storage of all kinds may be accommodated, and as a potential workshop space for the man of the house.

#### Planning and Design

First of all, space for the car must be at least wide enough to permit car doors to be opened so individuals may get in and out comfortably when the car is in the garage. Ten feet is about the minimum width for this, It must be at least\*long enough so a person can get around the car with the garage door closed. That means at least six inches in front and about 18 inches clearance in the rear. With the exception of about three of the largest American passenger cars made, 20 feet is adequate for this. The ceiling or deck above the car should be at least seven feet six inches above the floor. These figures approximate the minimum requirements for housing the family car. FHA requirements in many areas specify minimum inside width of 9 feet 6 inches and length of

Size of the lot and location of the garage determine largely where additional space can be provided in the unit so it can properly fulfill its function as a utility building. If it must be single-car width then the extra space should be added lengthwise. Even though the family may never intend to have two cars, a double-car 20-foot wide unit is desirable where space

GARAGES
GARAGE DOORS,
HARDWARE, and
AUTOMATIC Operators

#### Garages

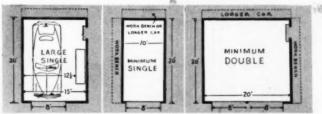
Multiple Purpose
Planning and Design
Construction

Doors

Hardware

**Automatic Operators** 

Driveways



A LARGE single garage should be at least 14 or 15 feet wide. This permits doors on both sides of the car to be opened comfortably and still allow about two feet for storage or a work bench along one side. The recommended minimum size for a single garage is 10x20 feet. If it must be kept to this width and if storage space is desired, the extra area can in most cases, be added to the length of the narrow structure. The recommended minimum size for a double garage is 20x20 feet. With two cars this leaves an inadequate amount storage space but ample room for the cars

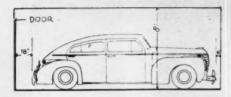
#### SEE ALSO

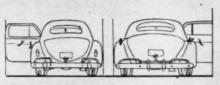
Laily columns, metal shutters and increes, other metal products—Chapter 3

Roofing, shouthing, siding-Chapter 13

Insulating boards—Chapter 10 Coment, morter, and related

Plyward-Chapter 5





IN PLANNING for space to be occupied by the automobile in a garage where space is also allocated to storage of tools, toys and equipment, these diagrams illustrate the points on the car to be measured. In figuring length, allow at least six inches in front of the car and 18 inches at the rear. A clear ceiling 7 feet and 8 inches in height is adequate. The diagrams above show a medium-sized and a large car with one door on each completely

open. The width should permit car doors to open fully without banging the garage wall, a work bench, bicycles or other stored items. If a work bench is desired, 2 feet is about minimum width. In general planning for storage space and driveways the following figures can be used as standards: longest car over-all, 236% inches; longest wheelbase, 145% inches; widest car, 80% inches; highest, 721% inches; minimum road clearance, 6% inches

permits. Variations in providing extra storage and recreational space in garages can take an infinite number of steps in different directions from these two standard setups.

The Urban Land Institute in its "Community Builders Handbook" says: "It is recommended that storage space be provided in garages even where houses contain basements. Provision of storage space in the garage for tools, garden furniture, and similar articles is desirable. For single car garages, it has been found feasible to add five to six feet to the length of the garage for this purpose. This is preferable to widening the garage as this may require a greater lot width."

Home buyers definitely prefer the attached garage with direct access to the street. Garages on the rear of the lot are unpopular because of the great amount of paving required and their interference with the use of yards.

When planning the garage, consider traffic between garage and house, garage and rear yard. Consider the housewife shopper with a load of bundles to carry from car to kitchen. A large door opening directly to the rear or side of the garage is usually preferred. When single garages are built wider than the 10-foot minimum inside but less than two-car width, the 8- or 9-foot entrance door for the car should be

placed off-center so that maximum storage or work space is allowed at one side.

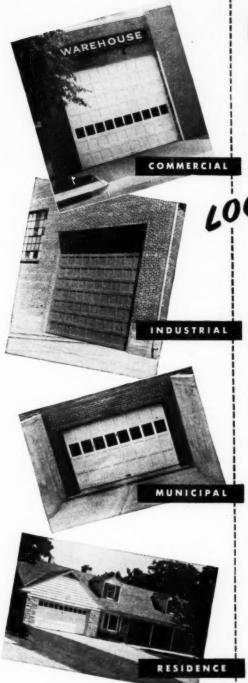
In addition to considering size of lot, building codes, climate, street traffic, and parking space for visitors, plan for adequate wiring, good lighting, and suitable ventilation to remove gasoline fumes and other odors from attached garages. There should be provision for running water as well as window area for light over work space.

#### Construction

No matter how well designed the garage is, it can soon start to fall (Continued on page 402)



WIDE OVERHANG gives protection from the weather while small windows set into upward-acting doors add note of interest





# Barcol OVERdoors

LOOK WELL ...

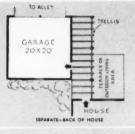
#### IN MANY PLACES

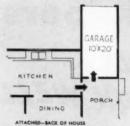
The best feature of Barcol OVERdoors is that they can be used in so many different ways. They can be made to fit almost any size opening. You can get special design sections to match decorative ideas. You can get special hardware arrangements to to take care of low headroom, high headroom, all-vertical and other situations. Yet you get the same distinctive and outstanding features for all these conditions. You get a cam closing action that insures weathertight closing without sticking. You get easy working doors, due to anti-friction rollers, tailored twin coil springs, straight-line cable connections. You get long life and low maintenance costs, due to good engineering and quality construction all the way through. You get, in the Barcol OVERdoor - and at reasonable cost practically all the value you could hope for; and you get it in any size door for any type of building. Standardize on Barcol OVERdoors others are doing it, with great satisfaction.

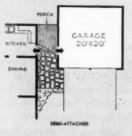
SALES AND SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

### BARBER-COLMAN COMPANY

104 MILL STREET . ROCKFORD, ILLINOIS



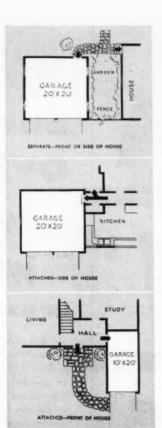




garage on the home site should never be underestimated. Easy and preferably protected access to the basement or service portions of the house adds immeasurably to the full use of the garage as a utility building. The driveway should always be planned at the same time the garage is planned. Tricky turns, bad grades and obstructed views of danger spots are

# IMPORTANCE of the location of the (Continued from page 400) apart without a good foundation.

Footings and foundations should always be put down according to local code requirements and climatic needs. Recommended floor for the modern garage is concrete slab at least four inches thick and equipped with drain. Unless the slab is reinforced, the underlying bed should be cinders, gravel, or crushed rock at least four inches deep. Earth should be level and tamped. The concrete slab should be at least two feet in front of the garage to form an apron sloping to the driveway. An expansion joint should be provided between apron and driveway. One popular



some of the results of poor driveway planning. A one-car driveway should be at least eight feet wide on straight stretches and 11 feet wide on the curves. Regardless of grade there should always be a level area at least 15 feet long in front of the garage to facilitate parking without the danger of the car moving because brakes are not set or because of tampering

floor with slab and foundation in one unit is the thick-edge reinforced slab. These are 18 to 24 inches thick at the outside edges with the underside arched to a minimum of four inches at the center.

Fire guards. All attached garages should be separated from the house by a fire-wall and fire-resistant doors which conform to local codes and underwriter specifications. If the house heating unit is installed in the garage, it should be partitioned off to prevent loss of heat. Where door openings occur between garage and house, the garage floor should be lower than the adjoining floor, or the door saddle should be raised a few inches.



Drawings Courtesy Fir Door Institute

THREE suggestions for providing extra space to help the garage fulfill its function as a utility building. In the interest of neatness, it is advisable to set up partitions or install cabinets to close off storage areas which frequently become cluttered

Framing. The one-story detached garage may be framed with 2 by 4's 24 inches on center. Studs do not have to be doubled around openings less than 3 to 31/2 feet in width. Corner posts can be 2 by 4's or 4 by 4's and single top plates can be used but should be lapped or tied at corners. The rafter ties can be 2 by 4's but should be spaced no farther than 6 feet on center. Corners should be braced, and these pieces can be fastened on the inside surface of the studs. Sheathing and building paper can be omitted, although these will help the home-owner avoid much hard starting in cold weather. In extremely cold climates, insulation is desirable. In temperate climates, open carports have proved popular, affording merely a roof and possibly one side wall for protection.

(Continued on page 404)



Berry 8' x 7' Door with Lights

al Grid Clear Span Roof Design



The strength and light weight of Diagonal Grid Design

 Rugged hardware, oversized bearings—continued easy operation

Horizontal grooves blending with contemporary home

 Durable zinc plating, plus bonderizing and a beautiful gray paint job

The new Berry Door Line includes 8' x 7' and 9' x 7' canopy and track types and a rigid 16'x7' track type-all available with owner-replaceable rubber mounted lights in two-piece mouldings used by bus and truck manufacturers for years. All hardware is packaged, complete with fastenings. Canopy extends 72"; track type disappears entirely within garage, requires 21/2" headroom. Easy-Guide Track eliminates "pin point" hanging. Balance and load requirements easily adjust-

Attach coupon to your letterhead for details and name of dealer in your area.

Inside of New 16' Borry Door showing Diagonal Grid Design

# tandard of the Industr

With the Strongest, Easiest Operating Garage Door Built

Here's why residential contractors-owners, too-want the garage door that's setting new standards throughout the industry. Only the new Berry Door gives them beauty, the durability of welded steel construction, the easiest operation known and a choice from a complete line of models for all requirements. And all these features mean continued owner satisfaction.

- Lights with "snap-in" rubber mouldings available for all models
- Half-hour installation of canopy type-by one profes-
- Latches on both sides-metal seals on both sides, replaceable rubber on bottom
- Prices which reflect the engineering and production methods of the automotive industry and years of garage door experience

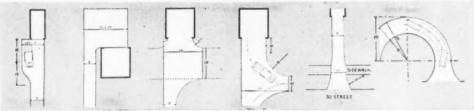
able by owner. Opening dimensions are standard, exactly  $8' \times 7'$ ,  $9' \times 7'$  and  $16' \times 7'$ , plumb and square, measured inside of trim.

STEEL DOOR CORPORATION

Pontiac, Mich. 364 S. Jessie Street

Please send details of Berry Door Line

Company....



THE first four designs above suggest various types of parking areas and turnarounds that can be incorporated as part of the garage driveway where they are necessary or desirable. Where these large areas are concrete they are also ideal for children's play or game courts. Dimensions shown are minimum. Where the driveway crosses the street curb. it must be flared at a three to five-foot radius.

The smallest outside radius to a circular turn-ground or curved driveway is 29 feet and the smallest inside radius is 18 feet

Drawings Courtesy Fir Door Institute

(Continued from page 402)

#### Garage Doors

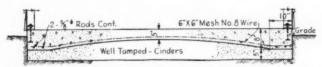
The garage door is usually the biggest single unit of movable equipment built in as part of the housing establishment. It is also one of the largest and most conspicuous features of the average home. Designers and builders who desire to please their clients therefore accord the garage door problem much thought and consideration.

A large group of ingenious manufacturers, fully recognizing the problems of garage closures, have developed a host of excellent doors to meet an infinite variety of problems and tastes. There should be no valid reason why any modern garage door should not operate as easily as the front door of the home, and look just as attractive.

There are about six major types of garage doors on the market in a wide

range of prices. These can be roughly classified as the roll-up or sectional door; the swing-up or panel type; sliding door; hinged doors; accordion doors and the two section upward-folding door. Upward-acting doors of one type or another are far

(Continued on page 406)



CROSS-SECTION of a thick-edge slab, reinforced to form foundation and floor of garage



# USE THIS GARAGE DOOR SELECTOR

GARAGE DOORS AND NAS

OVERHEAD GARAGE DOORS

Door and Hardware Complete



One-piece, single-width doors; easy to install, no maintenance.

Sectional, single-width doors offer many exclusive features.



One-piece double-width door has two full-length adjustable trusses.

Sectional, double-width doors have two adjustable trusses.





Frantz, one of the largest manufacturers of overhead garage doors and hardware, offers a choice of one-piece or sectional-type doors for most openings. For further details please see your Frantz Dealer or write for Catalog No. 301.

OPE	NING	DOOR TYPE	UNIT
WIDTH	HEIGHT	(WOOD)	NO.
8'	6'6"	One Piece	7
		Sectional	286
8'	6'8"	One Piece	77
		One Piece	10
8'	7'	One Piece	20
		Sectional	200
9'	6'6"	Sectional	279
0,	7'	One Piece	19
A.		Sectional	-219
15'	7'	Sectional	235
16'	2/	One Piece	21
10	,	Sectional	226

#### OVERHEAD DOOR HARDWARE For Custom and Mill-Made Doors



Popular-priced hardware for lightweight custom or mill doors.

Heavier sets adjustable for commercial doors up to 10' high.



Medium-weight, built-up doors can be designed to harmonize with house. Heaviest industrial doors up to 12' high handled quickly, effortlessly.





Frantz Overhead Door Hardware can be used with any carpenter-built or millmade door, single or double-width, in heights to 12°. Proved and improved for more than 20 years. For further details see your nearest Frantz Dealer or write for Catalog No. 107.

FRANTZ MANUFACTURING COMPANY
STERLING, ILLINOIS

OPEN	ING	WEIGHT OF	SET	
WIDTH	HEIGHT	DOOR HANDLED	NO	
	6'2" to 6'7"	100-150 lbs.	83	
	6'6" to 7'0"	50-95 lbs.	82	
	6'8" to 7'0"	100-150 lbs.	85	
7'6" to 8'4"	6'6" to 7'3"	100-150 lbs.	74	
10 10 8.4	7'4" to 8'0"	100-150 lbs.	75	
	6'8" to 7'3"	150-250 lbs.	171	
	7'4" to 8'0"	150-250 lbs.	71	
	7'4" to 8'0"	200-300 lbs.	78	
	6'2" to 6'7"	100-150 lbs.	839	
	6'8" to 7'0"	100-150 lbs.	809	
8'5" to 9'4"	6'6" to 7'3"	100-150 lbs.	74	
	6'8" to 7'3"	150-250 lbs.	17	
	7'4" to 8'0"	150-250 lbs.	78	
	9'7" to 10'0"	100-200 lbs.	810	
8' to 14'	9'1" to 9'6"	125-225 lbs.		
0 10 14	8'7" to 9'0"	150-250 lbs.		
	8'0" to 8'6"	175-275 lbs.		
9' to 14'	6'8" to 7'3"	150-250 lbs.	9	
7 10 14	7'4" to 8'0"	150-250 lbs.	9	
	9'1" to 10'0"	150-250 lbs.		
8' to 16'	8'1" to 9'0"	175-275 lbs.	71	
	7'0" to 8'0"	200-300 lbs.		
9' to 16'	6'8" to 7'3"	200-300 lbs.	78	
A 10 10.	7'4" to 8'0"	200-300 lbs.	78	
	9'1" to 10'0"	180-375 lbs.		
8' to 18'	8'1" to 9'0"	210-425 lbs.	71	
	7'0" to 8'0"	240-475 lbs.		
	11'1" to 12'0"	300-600 ibs.		
9' to 18'	10'1" to 11'0"	335-650 lbs.	91	



#### A PACKAGE DEAL FOR THE LUMBER DEALER

#### 3 DOORS TO GREATER PROFITS

CAPITOL PRODUCTS now offers you 3 fine garage doors that enable you to reach every market — to help you sell profitably, confidently and competitively.

#### FLUSH PANEL



Beauty and utility plus Taper Seal. Panels electronically bonded (not nailed) to frame — insures rigidity — prevents warping — stranger, lasts langer. Sizes: 8' x 2'; 8' x 7'6"; 8' x 8'; 9' x 7'. Thickness: 1 ¾".



TAPER SEAL

The door for your average customer. Beauty with long, trouble-free life at reasonable cost—means faster sales for you—greater profits. Sizes: 8 x 6'6"; 8' x 7'; 8' x 7'6"; 8' x 8'; 9' x 7'; 9' x 8'; 10' x 7'; 10' x 8'; 10' x 7'; 10' x 8'; 10' x 9'; and 10' x 9'; and 10' x 10'.

#### EASY LIFT



An attractive, competitively priced door with great appeal. "Timber Tax" treated — termite and rot roofed. Balanced, feather touch operation—long life, Sixes: 8' x 6'6"; 8' x 7'; and 9' x 7'.

Doors are pre-drilled for lock hinges and handles—stop is also furnished.

#### CAPITOL PRODUCTS

P.O. Box 1240

Springfield, Illinois



AUTOMOBILE bumpers and tail pipes scrape the driveway unless careful calculation is made on grade variations. A change of not more than one inch per foot within any 10 feet of distance will assually allow adequate clearance

(Continued from page 404)

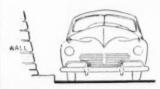
in the lead in popularity with builders and home purchasers.

Prime consideration in planning any garage for the installation of an upward-acting door is provision for head room for the type of door to be installed. There are doors available to take care of all kinds of head room situations, with a number on the market which require no head room, some only two or three inches, on up the scale to others which require 15 to 16 inches. Stock sizes range from the smallest listed, which is 8 feet wide by 6 feet 6 inches high, on up to the large full double garage width of 14, 15 and 16 feet. There are sectional roll-up doors available with removable center posts. Thus two or more doors can be installed to close a large opening and if found desirable. the center posts between the doors can be raised up and taken out of the way to provide a clear opening of any width structurally sound.

Manufacturers are bringing remote control by electricity or sound activation to garage doors at prices that often make it practical to install these

Their desirability and convenience to the home owner stem from the fact that the garage door can be opened or closed by merely pushing a button on the instrument panel or floor of the car. With garages fronting on the streets and being used more extensively as utility and storage structures, the need for keeping the door closed at all times is obvious. It not

(Continued on page 408)



IF THERE is a retaining wall parallel with the driveway, it is desirable to install a low curb at the base to guide automobile wheels so fenders will not scrape the wall

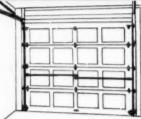


Exclusive ROBOT Features

SAFE FILCTION DEIVE—Maximum protection to person and superior to person to per

FRE CATALOG—Write Dept. AB
HATION-WIDE SALES, INSTALLATION & SERVICE
ROBOT APPLIANCES, INC.





"ROLLEZY" AND

"GLIDEOVER"—A wide range of overhead models and sizes from 8' x 6'6" to 24' x 24' to meet all residential and commercial requirements.

"AUTOMATIC

ELECTRIC DOORMAN"-Push-button operator for opening and closing ANY make of sectional overhead and most one-piece doors.

WAGNER ALSO MAKES—Saw horse treatles, scaffold, roof, and folding ladder brackets and hardware specialties. Ask for Bulletins.

WAGNER MANUFACTURING CO.
BOX AB-52
Cedar Falls, Iowa

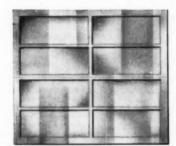
**Jobbers Dealers** 



THE RELIABLE

Chaw-Fir-Don

OVERHEAD-TYPE GARAGE DOOR is available again in quantity





Craw-Fir-Door No. 44

Craw-Fir-Door No. 45



type lock is furnished with Craw-Fir-Door hardware. This time-tested favorite is now available in any quantity you need. Immediate delivery is assured for popular Craw-Fir-Dors. Stocks of the easy-working Crawford hardware are now adequate to supply all demands for these units.

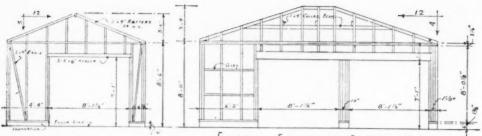
And the same outstanding Craw-Fir-Dor features are also back ... attractive appearance in 2 styles; Douglas Fir durability, strength and weatherproof panels; automobile-type lock and keys . . . and low cost!

Pre-assembled Crawford hardware requires a minimum of handling and provides quick, easy installation and operation. Only 2" headroom is needed.

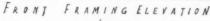
Sold only through lumber dealers, Craw-Fir-Dor is a fastmoving, profit building item . . . profitable for dealer, jobber and builder.

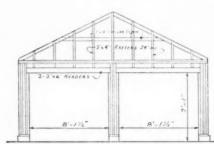
Be sure to include Craw-Fir-Dors in your next order of doors from mills of the Pacific Northwest door manufacturers!

**APRIL 1952** 

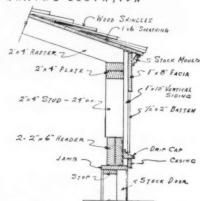


FRONT FRAMING ELEVATION





FRONT FRAMING ELEVATION



SECTION THRU DOOR HEAD & EAVE

# SEVERAL examples of garage framing showing practices which conform to common situations. Where there are storage rooms or living quarters above the garage, framing of course, is done to accommodate the extra loads. Exterior garage architecture and finish should closely match the house even though the garage is detached

# Easy to Install ... Lasting Satisfaction Possible Pulsing Satisfaction Application Service S

Combine the expertly-designed Allith garage door hardware with your own or any standard door. Result . . . a rugged, easily-operated overhead door that gives full and lasting customer satisfaction.

Quickly installed, standard set fits any opening up to 9' wide x 7'6' high when doors do not exceed 275 lbs. Other sets available for openings up to 10' wide x 10' high.

# PROUTY, INC

DANVILLE, ILLINOIS
IN AMERICAN BUILDER for Forty-Five Years

(Continued from page 406)

only obviates the danger of theft but also closes off from public view whatever weaknesses the home owner may have as a neat housekeeper where the garage is concerned. Because houses are designed to look their best with the garage doors closed, it is desirable that they be closed most of the time, whether the garage is attached or detached.

There are several different models of automatic door operators, but basically they consist of a simple sending unit mounted in the owner's car with an individual wave length set to activate the door operator mounted in his garage. His car unit will not open any other doors and no other owner of an automatic set of

(Continued on page 410)

Quick Installation and Trouble Free Performance - Always!



The Plywood Hanger (FW-6PH) is designed for plywood doors used on cabinets, closets, and similar installations. The Non-Adjustable Hanger (FW-6H) is designed for standard doors up to 100 lbs. The Adjust-

able Hanger (FW-6AH) is also for doors up to 100 lbs. and permits a 1" vertical adjustment of the door. In addition, Har-Vey Hardware is available for light wardrobe doors as well as for extra-heavy interior doors.

- ★ COMPLETELY RUSTPROOF The durable, high-quality materials used for Har-Vey Hardware are completely rustproof there's no corrosion to cause replacement or repairs.
- ★ SMOOTH AND SILENT Doors glide easily and softly on Har-Vey's new oil-cushioned Oilite bearings. These remarkable bearings are self lubricating, provide perpetual smooth rolling with no maintenance.
- ★ POSITIVE LOCKING A new engineering feature insures positive locking of the hanger to the door, for both the adjustable and non-adjustable models hanger and door cannot become disengaged.
- ★ SIMPLE TO INSTALL There's no trick to installation any workman can handle details quickly and easily, with no special tools necessary.



The Har-Vey track, made of aluminum alloy specially processed for lifetime wear, is designed to prevent possibility of roller jumping track. The double-track model is used for by-passing doors.



FW - 5

The WARDROBE HANGER FW-5 is designed for wardrobe and cabinet doors under 35 lbs., offers several exclusive features: Doors can be hung from the outside (in a minimum of time), space between doors can be varied and any number of doors can be used in an installation.

FW-5 Hanger and track are supplied as a package — details upon request.

Write for full details -- Address Hardware Division "O"

#### METAL PRODUCTS CORPORATION

807 N. W. 20th Street Miami, Florida

Western Division: Calmetco, Inc. 609 S. Anderson, Los Angeles, California

Please send me your free folder on rolling doors & Har-Vey Hardware

NAME

COMPANY\_\_\_\_

STREET

CITY\_\_\_\_\_STATE\_\_\_\_

MODERN TECHNIQUES in design and manufacture of automatic door operators make them efficient and trouble-free when properly installed according to manufacturer's specifications. A push button installed somewhere on the instrument panel of the car or on the floor is used to activate the mechanism from the car

Photo & drawing courtesy Barber Colman Co



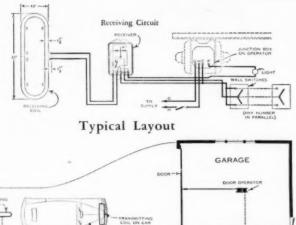


DIAGRAM showing one type of automatic garage door operator installation. This particular unit utilizes a receiving coil inbedded in the driveway. There are others which make direct remote control or this the operator. All units are on individual wave lengths so that the sending unit in a car will open only the door to which it is synchronized. Wall switches can be used to open the door also and should electric power fail the door can always be opened manually

(Continued from page 408)

his type can open his door. These units make contact with a coil imbedded in the driveway or directly with the operating mechanism. There are units that activate the door operators with inaudible sound vibrations and function in the standard manner. Electrical switches inside the garage can be used to open or close the door and, should electric power fail, the door can be opened manually.

#### Hardware

Proper installation is essential to good hardware and fittings. Follow strictly the manufacturer's specifications and directions on garage door and hardware installation, particularly on upward-acting types. Decide on the particular door to be installed before the rough opening is made so that it will fit the finished job, and so that any necessary headers and jamb framing members can be built in originally to keep the door plumb and rigid. Hardware of many types is available for the contractor who wishes to fabricate his garage door on the site. Follow manufacturer's instructions and avoid overloading or misuse of fittings and parts.

The renovation of old garages with new doors or with new hardware is an important aspect of remodeling work. Some companies offer hardware which will convert swinging or accordion doors to the upward-acting type.

#### Driveways

Poor driveway planning results in tricky turns, bad grades, obstructed views, accidents, and grief for the home owner. A one-car driveway should be at least eight feet wide on the straight and 11 feet wide on curves. The minimum width for 2-car drives is 15 feet, and wider is better. If the driveway slopes, there should be a level area the length of the car

in front of the garage to prevent rolling if brakes are not set.

With modern automobiles, the smallest outside radius for a curve is 29 feet, and the smallest inside radius 18 feet. Curb returns at the roadway should be three to five feet in radius.

Sharp dips and sudden changes in grade are other faults to avoid. A change in grade of not over one inch per foot in any ten-foot stretch will allow adequate clearance for car overhangs. Slope the drive slightly to the sides for drainage.

Visitors and guests commonly park near the owner's driveway, and the garage and drive are frequently his first view of the place. This makes it essential that the driveway be in good order and the garage door attractive. Thanks to the ingenuity of designers and manufacturers, owners and builders can now obtain garage doors and fittings which are in excellent taste and make a handsome and inviting appearance.

## STRAND -ALL-STEEL GARAGE DOORS

#### 9' x 7' RECEDING TRACK AND CANOPY

Extra width gives extra clearance. No more banged-up fenders from too-narrow garage openings. Horizontal-line styling provides that wide, spacious look—new beauty for the garage. Swings open easily at a turn of the handle. Rugged, new "X-type" steel bracing adds to the great strength and rigidity of the one-piece, all-steel door leaf. Deeper, stronger, steel frame. One-piece door leaf eliminates field assembly of separate sections; packaged hardware is factory-assembled. Installation is simple and easy. Requires less than 2" of headroom. Weatherstrip at bottom seals opening against drafts and snow.

#### 8' x 7' RECEDING TRACK AND CANOPY

New horizontal-line styling adds new beauty to this standard-width STRAND Door, and harmonizes with today's architecture. STRAND'S 8' x 7' Door is available in both Receding (Track) and Canopy Types. Wider, deeper frame gives greater strength. Ball-bearing rollers and strong adjustable springs assure easy, quiet and smooth operation of Receding Type. Strong adjustable springs do the lifting and permit easy opening and closing of Canopy Type. Requires less than 2" of headroom . . . no interference with overhead ties or storage space. Heavy rubber weatherstrip at bottom of all-steel panel seals doors against drafts and snow. Can be trimmed to fit uneven floors. Factory-assembled hardware comes ready to install. Saves valuable installation time.

#### 16' x 7' RECEDING TRACK

The STRAND All-Steel, Horizontal-Line, Track-Type Door for double garages is shipped in two sections (each 8' x 7'), complete with necessary joining material and packaged, factory-assembled hardware. This beautiful double-width door assures the same easy, low-cost installation, and the same esturdy strength, ease of operation, and other advantages of STRAND Single Doors. STRAND Double-Garage Door eliminates the cost of building a center post—ensures an unobstructed opening 16 wide—and costs less than two Single Doors.

		1 10
	9	
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	10	×
	11	-

RECEDING (track) TYPE

CANOPY TYPE

ratings open ocally on helfsociality reliates and discosours completely inside the parage, when open. Provides shalter from surand rain when open, extendting only 10" lexide garage. STRAND GARAGE DOOR DIVISION Detroit Steef Products Company Dept. AB 4 2242 E. Grand Blvd.

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### McKEE OVERDOORS

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AND TWIN TORSION SPRINGS

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\* patented







McKee's patented Twin Rollors are furnished on all 134" overdoors. Each door section can be litted snugly against the jamb by means of the twin adjustable Rollors. With twice as many rollers at each section joint, the door moves easier and reduces the wear on the rollers. The inclined track gives a weather-light seal.



#### ELECTRONIC SERVICEMAN

Electric Serviceman is McKee's radio controlled residential electric operator. No coils to bury in the driveway, Just press the button in the car—the door opens automatically, the garage light turns on automatically!

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#### FACTS YOU SHOULD KNOW ABOUT THE

# availability

OF PITTSBURGH CORNING GLASS BLOCKS





It isn't necessary to tell you about the difficulties involved in obtaining certain building materials these days—because of short supply, or slow delivery. So, it's big news—and reassuring to know—that such an important building material as PC Glass Blocks is immediately available and in ample supply! Also important to you is the fact that PC Glass Blocks involve no metal when used in small panels, and very little is required in large panels. In fact you can put in small panels of PC Glass Blocks—up to an area of 25 sq. ft.—without using wall ties, wall anchors or expansion strips. This adds up to a big saving in time, labor and material.

More and more builders are taking advantage of the immediate availability of PC Glass Blocks to speed up their work on new homes and on renovating jobs. They are using these glass blocks extensively around entrances, for cellar and other windows—as well as for bath stalls, room partitions and at stairwells. You'll find it profitable to give more thought to the inclusion of PC Glass Blocks in all your work.

Other Facts: PC Glass Blocks admit adequate daylight and assure privacy; they have high insulating value, are easily cleaned, deaden outside noises, stop infiltration of dust and grit; rarely need repairs; never require painting.

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THE WALL OF GLASS and "picture window," are characteristic of modern design for increasing livability in both lower-priced and more expensive homes

ROM the time that glass was first discovered or invented by some ancient Egyptian, it has been used by men for ornamental purposes. However, with the exception of the homes of the rich, glass played very little part in the lives of every-day people due to the crude and cumbersome methods of manufacture. The old method of making crown glass used by the Romans continued in use until after 1800 A.D., when the hand cylinder process was developed. Not until 1903 was glass-making mechanized by the machine cylinder method, and improved in 1917 by the sheet-drawing method, which is used to make most window glass today. Modern technology has made phenomenal advances in both process and product in glass manufacture, by far the greater part of it in the last 30 years, with improvements coming faster and product applications multiplying every year.

#### MODERN USES OF GLASS

Continuous window glass manufactured by the sheet-drawing method now makes it possible to produce the complete piece of glass, ready to ship, 10 hours after the raw materials reach the factory. Seventy-five per cent of all window glass is used in single strength thickness, the remainder being either double strength or greater.

#### HOW TO LAY GLASS BLOCK



(1) BRUSH HEAVY COAT of asphalt on



(2) APPLY MORTAR joints 1/4-inch thick

FOR SIMPLIFIED INSTALLATION of 6 inch and 8 inch glass block in residential construction: (1) Make panels not in excess of 25 square feet, with maximum width of 5 feet and maximum height of 7 feet. Larger sixes require standard installation including expansion joints, and wall ties. (2) Panels are not load bearing, must be framed with lintel support at head. (3) Recommended mortar mix is one part portland cement, one part hydrated lime, 4 to 8 parts plastering sand. (4) Brush heavy coat of asphalt 3½ inches wide on sills and jambs; lay block using mortar joints ½-inch thick. Tool joints to smooth finish and clean panel; caulk with waterproof mastic compound



(3) LAY BLOCKS with full mortar joints sills and jambs



(4) CLEAN OFF loose mortar. Caulk with



LIVING ROOM with fireplace set in end wall of glass

Sheets measure up to 100 by 120 inches, Coloring and tinting for special purposes is also provided, to reduce glare, permit more smilight to enter, and for other purposes.

In modern design the "wall of glass" has been much used. It permits a greater illusion of space in homes built with minimum floor space, a terrace or garden becoming a logical continuation of a room. Solar orientation of homes, using generous glass areas has been widely touted as making for better lighting and more enjoyable living.

Solar heating, considered by many as still being in the developmental stage, depends for its effectiveness upon the use of large areas of glass to receive the sun's rays and transmit them to the heat transfer and heat storage equipment involved in the system. Glass pipe is being used in some installations for soil pipe and other purposes, and in other ways glass products are finding increasing application in modern design for comfortable living.

#### Interior Walls and Partitions

"Open design" in modern living has meant the disappearance of traditional walls and partitions in many structures, so that the economical use of floor space might still permit a sense of spaciousness in the dwelling. With the virtual elimination of the dining room in favor of a dining nook or dining space at one end of the living room, plus the open kitchen feature. many designers have found that glass partitions, or partial partitions, add a sense of privacy and separation to the functional areas of the floor plan without destroying the over-all sense of spaciousness desired. These partitions may be glass block, or corrugated and patterned glass available in a wide range of patterns. In many instances, structural glass panels or architectural glass "tile" are utilized in producing both attractive and extremely serviceable walls for kitchens. bathrooms, utility rooms, and other spots where a bright, shiny surface is desired and where ease in cleaning is essential.



WALLS OF GLASS, fixed as well as movable are becoming increasingly popular in houses in all price ranges



SEALED WINDOWS of fluted opaque glass admit light and maintain privacy. Wood louvres ventilate



HALLWAY is transformed to attractive, light area with glass block wall treatment. Casement window at left



HEAVY PLATE GLASS is used for effective sliding panel treatment between kitchen and laundry



PATTERNED SHEET GLASS adds privacy to dining alcove while admitting light from other rooms



GLASS BLOCK forms non load-bearing partition to screen entrance from living

#### Glass for Decoration

Large mirror areas are much used both for the beauty of the surface and for the additional sense of depth and space which they give. Mirrors today are backed with silver, gold, or gun metal, and may be made of ordinary window glass, water-white plate glass, or of blue or flesh-tinted plate. Some are as large as 14 by 7 feet. Many charming possibilities exist, ranging from lining one entire wall of a room with mirrors to the mirror over the fireplace flanked by glass block. Some designers also consider the seeingaround-corners angle, so that many parts of the house are visible from almost any spot within the house.

Alcoves with glass panels or complete glass walls are added as attractive features in some designs, and both bent glass and plate glass are frequently used in decorative cornices. shelving, counter tops, and trim. Special effects can be achieved with color. mural designs by etching or sandblasting and other means. Glass for louvres in doors between rooms and in ventilators, both glass block and in connection with picture windows. has been found convenient and practicable. Some manufacturers produce a louvre-type window with movable glass louvres.

#### Light Commercial and Industrial Uses of Glass

Glass plays a prominent part in modern store design. The old-fashioned store window, if not eliminated in the trend towards putting the whole store in the window, is at least modernized with larger glass areas, glass back panels, and architectural colored glass surfacing on the store front. Tempered plate glass doors and windows reaching from floor to ceiling combined with modern fluorescend lighting make for dramatic entrances and displays for commercial buildings of many types. The perpetually shining, clean, and colorful appearance

PLENTY of light without sacrifice of privacy achieved in powder room treatment; sense of spaciousness is gained through use of mirror-wall





GLASS BLOCK custom-built shower stall keynotes bathroom with walls of structural glass "tile"

of a building faced with architectural glass gives impetus to the store's merchandising activities, and offers builders numerous opportunities for remodeling and store modernization. Glass block, both for lighting and decorative effects, has an equally important place.

Interior walls of architectural glass add not only beauty but additional light by reflection and this increases the impact of the merchandising design and display. Small office buildings find that glass block and structural or patterned glass panels provide privacy, some measure of sound control, and at the same time increase the admitted smalight to the point where foot-candles delivered to each desk are at a comfortable level.

#### Air Conditioning

There is an increasing demand on the part of tenants of office buildings and commercial structures for more or less complete air conditioning. The



FLOOR TO CEILING PARTITION of glass block carries no load but attractively separates kitchen from other area

double-pane window with insulative dead air space, and the glass block composed of two lenses with entrapped air both provide a measure of insulation and facilitate temperature and humidity control. Small industries such as dairies, candy manufacturers and bakeries, have found that glass block walls not only provide more light without glare but also reduce condensation on interior wall surfaces. as compared to ordinary glass; and by maintaining relatively higher temperatures on inside surfaces in winter and cooler temperatures in summer such walls reduce the load on the heating and air conditioning units installed in the building.

#### Skylights and Roof Hatches

The old glass skylight is being replaced with modern plastic-glass or wire-glass, in some cases colored or tinted. Roof batches of plastic and plastic glass are also available, so that interior rooms and areaways may re-



BATHROOM WALLS combine glass with structural glass; the polished plate glass mirrors are moisture resistant

ceive additional light, weather protection, and provide security. In some instances, where an industrial building is roofed, for example, with corrugated metal sheets, some of the roofing sheets may be replaced with structural corrugated glass or plastic glass materials; this increases available light and does not increase heat loss from the building.

#### Cabinets, Displays, Decoration

In addition to factory-built glass cabinets and display counters, there are many opportunities in store modernization for the builder to profit by the installation of attractive displays utilizing glass panels, sliding glass doors, and similar materials.

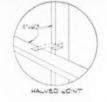
#### Glass on the Farm

Glass block in particular is finding increasing use in farm buildings, and is being installed in both new and old structures to provide light and maintain the insulating quality of masonry (Continued on page 420)

#### SUGGESTED DETAILS FOR WINDOW-WALL CONSTRUCTION



 (a)	



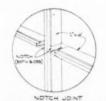


ELEVATION OF WINDOW MALL

THE EXPLODED DETAILS SHOW THREE SUGGESTED METHODS OF FRAMING A FIXED WINDOW WALL.









ALTERNATE METHODS used in framing window-wall

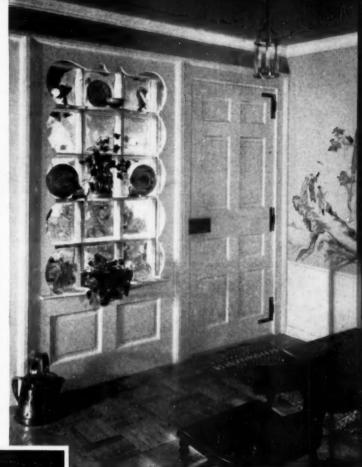
ALTERNATE POSITION of glass and stops in intermediate frames



Here is the doorway opposite but with a panel of regular single glaze glass. With a random clear glass block panel, prying eyes cannot see inside.



2 11/6



By night, the entranceway glows with a light that radiates welcome to friends. By day, inside rooms are flooded with natural daylight.

This random clear panel retains all of the doorway's colonial charm. The subtle variation in the block face is reminiscent of old handmade glass.

#### GLASS BLOCK "GOES" WITH ANY ARCHITECTURE

WHETHER A HOME is traditional or modern, it can have the advantages of Insulux Glass Block. Block patterns are available in a wide variety of face designs that "go" with any architectural design.

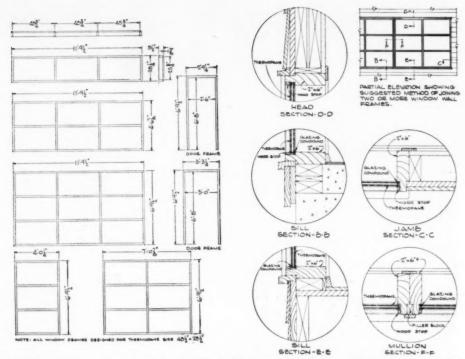
What other material offers you the opportunities to create such interesting, new architectural effects that are so decorative ... so useful ... yet so practical?

For information, write to Insulux Division, American Structural Products Company, Box 1035, Toledo 1, Ohio.

#### INSULUX GLASS BLOCK



A product of the Owens-Illinois Glass Company



AT LEFT: typical units are built in combinations of one or nine. Right: sections through window wall using 2 by 6 members for frame

(Continued from page 418) or wood walls. Farm homes, of course, offer the same opportunities for modernization and application of all types of glass for windows and ornamentation as do other residences.

#### TYPES OF GLASS

There are many types of flat glass available to the builder today which were unheard of 30 years ago. In addition to the centuries-old spun glass or crown glass and blown glass, there are heavy drawn and fluted drawn sheet glass, polished plate, rough plate, rolled sheet, fluted rolled, rough cast, figure rolled, tempered plate, opal and colored opal, safety glass, pressed glass, ultra-violet glass, heatresisting glass, and a host of others including corrugated, glass block, and architectural glass.

#### Sheet Glass

Sheet glass used for windows is commonly single strength. The safe glazing size must always be considered so that the glazed area will have sufficient strength to withstand wind stresses. The table below summarizes this information and indicates some of the basic sizes of window glass available.



PLEXIGLAS blister skylights throw direct sunlight into rooms



PLASTIC MATERIALS permit curved contours that are smooth, shining, sanitary, permit use of colors, may be transparent or opaque



STORE FRONTS can be modernized with tempered plate glass, with doors and windows designed for maximum visibility and ability to withstand heavy use

Weight per sq. ft.	Thick- ness	Manu- factured Sizes	Safe Glazing Size
15 oz. 21 oz.	725	60 x 40" 81 x 42" or	24 x 24"
26 oz.	16"	68 x 50" 81 x 45" or	$30 \ge 30''$
32 oz.	165"	70 x 51" 74 x 39" or	35 x 35"
Mar Miles	720	58 x 50"	40 x 40"

Sheet glass is made in various qualities: "firsts" for cabinet work; "seconds" for picture framing and glazing: "thirds" for houses, schools, and offices; "fourths" for general glazing; and "horticultural" for greenhouses. Heavy drawn sheet glass is used as a substitute for plate in cheaper construction.

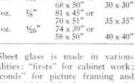
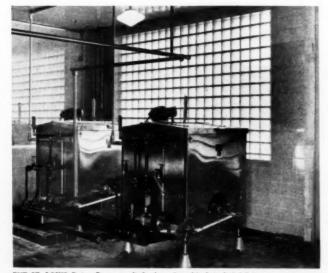




Plate glass contains more lime and less soda and magnesia than sheet glass, and is made by the semi-continuous method of rolling, while sheet glass is made by the fully continuous method of drawing. Prior to 1923 plate glass was made by pouring molten glass onto a casting table. Plate glass is ground and polished, which may remove as much as half of its original thickness, leaving a smooth, glossy, and optically true glass, structurally sound and highly attractive. Thicknesses range from ½ inch to 1½ inches and sheet sizes are available up to 127 by 286 inches.

Heat-absorbing plate glass excludes much of the heat in the sun's rays



THE ST. LOUIS Dairy Company finds that glass block is helpful in temperature control and provides more light, with reduced maintenance



ATTRACTIVE plate glass displays can be site-built with glass precut by maker

while transmitting most of the light. It is especially useful in industry where it is desirable to reduce interior temperatures which would otherwise be raised by the sun's heat. Exclusion of this solar heat means substantial savings of cooling costs in air-conditioned buildings. Such glass may be plain, corrugated, or wire-meshed.

#### Tempered Plate Glass

Tempered plate glass is made by re-heating a piece of plate glass and then rapidly cooling the surface with air jets. This sets up a system of halanced stresses and strains in the material which makes it many times as strong as ordinary plate glass. It cannot be cut once it has cooled, for this would shatter the halance of strain and stress and reduce the whole piece to fragments. Consequently, it must be cast to exact size before it is tempered.

Widely used in modern store fronts and entrances, as well as in display cases and some shower stalls, tempered plate glass is available in a wide range of colors, and may also be colored on one side for use in signs and lighted displays.

#### Patterned and Diffusing Glass

The use of obscure glass to prevent vision while admitting light is not new, but in recent years manufacturers of glass have come up with a wide range of attractive designs worked into the surface of both sheet and plate glass, either by pressing, etching, or sandblasting. The size of the individual pane of glass and the amount of vibration which it will receive from walking or street traffic will govern the thickness of the glass to be used. If protection against breakage and fire, as well as privacy, are desired, a figured wire glass may be installed. Glare reduction and heat reduction are also built into various types of



PLAIN SHEET GLASS windows form sound-control interior panels in welllighted architect's office

obscure glass for industrial and commercial purposes.

#### Double Glazing

Few modern homes are being built today without at least one large double-glazed picture window. A double-glazed unit is composed of two lights of glass held in place with a metallic spacer and rubber bond, making an hermetically sealed air space. In some instances, windows may be similarly triple glazed, and a few cases have had as many as five lights of glass separated by sealed air spaces.

Double-glazed units are available in approximately 50 standard sizes ranging from 35½ by 36 inches to 72 by 96 inches. When needed, special sizes may be obtained. Installation can best be accomplished by following closely manufacturer's instructions, which include roughly the following data:

(1) Openings must be square, free of twists or glazing obstructions. Units should not be set in poorly constructed frames, inadequate to bear the weight of the sash (6 lbs, per sq. ft.).



WHITE CORRUGATED plastic panels mesh with galvanized iron sheet siding, provide light with privacy

nor be of unseasoned lumber which might warp.

- (2) Sash must literally float in the opening.
- (3) Use of elastic glazing compound is recommended. Do not use putty.
- (4) Two lead or treated wood setting blocks as wide as the thickness of the unit are to be placed one-fourth of the opening width from each end of the unit.
- (5) Place sufficient glazing compound on the back of glazing rabbet. This allows unit to be positioned, filling voids behind edge of glass.

#### Structural Glass

Structural glass was originally developed for sanitary purposes for washroom partitions and walls, but is now widely used also for store fronts and similar installations. Stronger and cheaper than either marble or tile, it is uniform in size, available in many different colors, and provides a permanent exterior surface of durability and beauty. It is not tempered, and may be cut, laminated, or otherwise worked in process of construction. It



"PRIVACY" panel carries light from one room to another or from corridor to an adjoining room

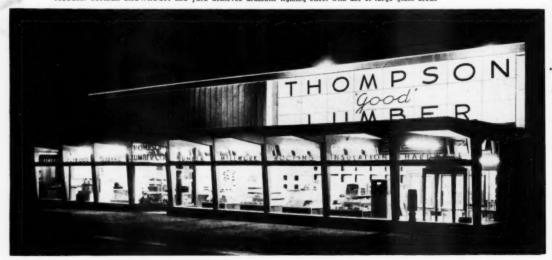
is also popular for bathrooms and kit-

Corrugated structural glass, a heavy cast or rolled glass, is available either clear or sandblasted, and may be obtained in two corrugations, one with waves one inch deep on 2½-inch centers, and the other ½ inch deep on 2½ inch centers. The former messhes with structural steel corrugated siding and may be installed along with corrugated steel in industrial buildings.

#### Architectural Glass

Architectural glass, as a special classification, is similar to obscure or patterned glass, but it includes as a group those sheets or panels which have very deep corrugations or patterns and are frequently patterned on one side and flat on the other. Surface finishes may be clear, fire-polished, matte, mirrored, sand-fused; actual (Continued on page 427)

MODERN LUMBER SHOWROOM and yard achieves dramatic lighting effect with use of large glass areas



#### PUT EXTRA APPEAL INTO YOUR HOMES WITH PLENTY OF

# Pittsburgh Glass



#### POLISHED PLATE GLASS

All types of homes, even in the low-price class, can make efficient use of this aristocrat of flat glass products. In picture windows, shelves, furniture and cabinet tops, shower doors, bar and table tops, sill covers and push plates, it lends smartness and appeal. It is brilliant and accurately reflective of surface; it permits clear, undistorted vision at any angle. Thicknesses from ½s" to 1½".



#### PENNVERNON WINDOW GLASS

Pennvernon is window glass at its best. You'll find it ideal for windows, French doors, shelves, corner windows, sun porches, skylights, and the like. It has excellent visional properties and a high degree of transparency, flatness and freedom from defects. Its dense surface structure permits easy cleaning. May be glazed either side out. Available in thicknesses from picture grade to 7/32".

 Looking for that extra measure of value that catches the eye of prospective home buyers and helps turn them into actual customers? You'll find valuable help on this and the following three pages.

Here you'll find the complete line of Pittsburgh Glass Products for residential construction. They cost so little yet

add so much to the charm and utility of a modern residence. And every one of these Pittsburgh Products is a readily apparent value ... buyers can see they're getting more for their money.



# SOLEX HEAT-ABSORBING PLATE GLASS

Solex Heat-Absorbing Plate Glass provides the ultimate in comfort for rooms exposed to the direct rays of the sun. While transmitting 70% to 75% of the sun's total light, the soft, greenish tint of Solex absorbs solar radiation and keeps the interior 10 to 20 degrees cooler than outside temperature. Glare is reduced and fabrics and carpets are protected against bleaching action of the sun's rays. "The best glass under the sun" is available in \( \frac{3}{6} \)" thicknesses.



#### FOR YOUR COMMERCIAL JOBS, TOO

You'll find all the products you need for store modernization in the complete line of Pittsburgh Store Front Materials. These include Plate Glass, Carrara Structural Glass, Twindow Instating Units, Pittsburgh Mirrors, PC Glass Blocks, Pittsburgh Doorways, Herculite Doors, Pittsburgh Paints and Pitteo Store Front Metal. Free, illustrated literature, showing how you can use glass effectively in store modernization jobs, will be sent to you on request.

# IWINDOW has the edge!

Ö

TWINDOW, Pittsburgh's window with built-in insulation, is as simple to install as a single pane of glass. Completely prefabricated, it consists of two or more pieces of glass enclosing a small hermetically sealed air space.

The entire edge of each Twindow Insulating Unit is encased in a stainless steel channel. This channel protects the seal as well as the edges of the glass during handling and provides a firm and even edge for installing.

Twindow adds an exceptional amount of "buy-appeal" to any home. It admits an abundance of daylight, frames a striking view. It cuts heat loss and eliminates downdrafts. Under normal conditions, it reduces the tendency for condensation to form.

For the ultimate in comfort, install Solex Twindow. The inside light is regular plate glass, but the outside light is green tint Solex Heat-Absorbing Glass that keeps out heat and glare while admitting plenty of useful light.

#### HOW TO GLAZE

WINDOW
THE PRIMER MEDIN
SET IN REAL PRIMERS

- Openings must be square, free of twists and glazing obstructions. Units should not be been in filmsily constructed frames, inadequate to bear the weight of Twindow, or frames of green wood which will warp later in drying out, thus introducing a strain in the Twindow setting.
- 2. To avoid glass breakage, Twindow, especially in large units must literally float in the opening, as shown in the diagram below.
- Place only a small amount of glazing compound at the back of the glazing rabbet. This will permit the unit to be positioned more easily than if glazing rabbet is full. Fill the void behind the edges of the Twindow unit and apply lace glazing compound before the stop is set.
- If Twindow units are to be installed in the standard steel sash, special Twindow unit wire glazing clips are available, bent to accommodate the additional thickness of Twindow.

#### PICTURE WINDOW GLAZING

GLAING
CORPOUND
Exclusive use of electic
glazing companied or other
material that retains some
resilience permanently.

EDGE
CLEARANCE
(%" - %4" - ½" of al
all sdges, depending upon size. Dismodely, De net force,

LATERAL CLEARANCE

#### - EDGE COVERAGE

Stainless steel chennel-cavered for uniform appearance and maximum edge insulation.

#### SETTING BLOCKS

Two, lead or treated wood, 3" to 4" long, located ½ of the width in from each end of the unit on all units wider than 36" or heavier than 50 lbs. Shims equally halpful in specing smaller, lighter units.

#### STOP

Glass stop does not bear on



### TWINDOW Standard Sizes for Picture Windows

Twindow Insulating Units Composed of 2 Pieces of Polished Plate Glass with 1/2" Air Space

STANDARD SIZES

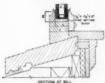
GLASS WIDTH HEIGHT	SASH WIDTH HEIGHT	SASH MANUFACTURER  Other soath manufacturers not listed may be able to supply equally satisfactory sash in those or modified designs.
GROUP I		The state of
48 ½ × 46 56 ½ × 46 ½ 72 ½ × 46 48 ½ × 50	4 4" x 4'2" 50" x 4 2" 4 4" x 4 4" 5 8" x 4 46 5 8" x 4 46 7 0" x 4 46 5 8" x 5 2" 7 0" x 5 2" 7 0" x 5 2" 10 0" x 5 2"	Anson & Gilkey, Merrill, Wisc.  'Curvis Companies, Inc., Clinfon, Iewa & Wausau, Wisc. Farley & Loestcher Mig. Co., Duboque, Iewa Huttig Mig. Co., Muscanine, Iewa Margan Co., Osbkosh, Wisc.
56½ x 50 64½ x 50 72½ x 50 80½ x 50	5'0" x 4'6" 5'8" x 4'6" 6'4" x 4'6"	Rock Island Millwork Co., Rock Island, III.
96½ x 50 64½ x 58 72½ x 58 80½ x 58	8'4" x 4'6" 5'8" x 5'2" 6'4" x 5'2" 7'0" x 5'2"	Soming-Menne Co., Merrill, Wric.  *Andersen Corporation Pressure Seel Picture Window Sash differing only slightly from the design shown will take the three 1's sizes, also 48½ "x x 46"; 36½" x 46"; x 46"; x 30"; 48½ "x x 30"; 64½" x 30".  **Revue-Greyas Co., Altran, Ohić, do not manufacture wood sost in
96½ × 58 116½ × 58	10'0" x 5'2"	Brown-Graves Co., Akron, Ohió, do not monufacture wood tosh in this design but their tesh will take sizes 48½" x 46"; 72½" x 46"; 48½" x 50"; 64½" x 50"; 72½" x 50".  Cupples Products Co., 5t. Louis, Missouri, monufacture aluminum tosh
GROUP 1*	5'8" × 4'2"	Cupples Products Ca., 5t. Louis, Missouri, monufacture aluminum tosh to take sizes 48 % x 50°; 56 % x 50°; 64 % x 50°; 72 % x 50°; 36 % x 50°; 64 % x 50°; 72 % x 50°; 30°; x 50°; x 50°; x 50°; and 80 % x 50°.  Weather-Seal carp., Barberton, Ohio. Weather-Seal cash, outside glazed,
48½ x 58 56½ x 58½	5'8" x 4'2" 4'4" x 5'2" 5'0" x 5'2"	Weather-Seal Corp., Barberton, Ohio. Weather-Seal task, outside glazed, will lake sizes 48½° x 30°, 56½° x 30°, 64½° x 30°, 72½° x 30°, 64½° x 30°, 72½° x 30°, 64½° x 50°, 72½° x 30°, 64½° x 50°, 72½° x 30°, 50° only.
		64½" x 50"; 72½" x 50" enty.  Sash and frames also available without flanking double hung windows.
GROUP II		
35 ½ x 36 55 ¼ x 36 75 x 36 35 ½ x 48 ½ 55 ½ x 48 ½ 75 x 48 ½ 35 ½ x 60 ½ 55 ½ x 60 ½	3'1%" x 3'2%" 4'9%" x 3'2%" 6'5%" x 3'2%" 4'9%" x 4'2%" 4'9%" x 4'2%" 3'14%" x 5'2%" 4'9%" x 5'2%" 6'5%" x 5'2%"	Andersen Corporation, Bayport, Minnesota
75 × 60%	6'51/4" x 5'21/6"	Sash and frames also available without flanking casement windows.
GROUP III		
50% x 47% 66% x 47% 50% x 60% 66% x 60%	4'5\%" × 4'2\%" 5'9\%" × 4'2\%" 4'5\%" × 5'3" 5'9\%" × 5'3"	Ceco Sheel Products Ca., Chicago, III. Hopes Windows, Inc., Jamestown, N. Y. Meskie Brothers han Co., St. Louis, Mo. J. S. Thorn Co., Philadelphia, Pa. Truscon Steel Co., Toongtown, Ohio
		The sizes included were developed in cooperation with the Mate Window Institute, on association of steel sash monufacturers, to be used as picture windows in steel sash, with or without flanking case ment windows.
		Sash and frames also available without flanking casement windows.
GROUP IV	4'0" x 4'8"	Aluminum Window Corp., Gordon City, L. I.
58 % x 52 % 70 % x 52 % 46 % x 56 %	4'0" x 4'8" 5'0" x 4'8" 6'0" x 4'8"	
58½ x 56½ 70½ x 56½	4'0" x 5'0" 5'0" x 5'0" 6'0" x 5'0"	Such and frames also available without flanking double hung windows
GROUP V		
56½ x 66 64½ x 66 72½ x 66	8'7%" x 5'7%" 9'3%" x 5'7%" 9'11%" x 5'7%"	Farley & Leetscher Mfg. Co., Dubuque, lows ("UNIPAK" PICTURE WINDOW GROUPS)
7272 X 00	V1176 X 3 776	Sash and frames available only with flanking casement windows.
GROUP VI		
48 × 48 72 × 48	4'3" x 4'4" 6'3" x 4'4" 4'3" x 5'4" 6'3" x 5'4"	Raiscreen Co., Pells, Iows
46 x 60 72 x 60	6'3" x 5'4"	Sash and frames also available without flanking casement windows,
GROUP VII		
42 x 66 84 x 66 95 x 66 42 x 72 84 x 72 95 x 72		Six miscellaneous even inch sizes have been added for simplicity.  These sizes are not intended for any specific type of sash.

Twindow units in all groups may be stop glazed in structural wood members without using sash as such.

Extreme caution should be taken that any built-up wood members are true, structurally sufficient to support the weight of Twindow, and constructed from well-seasoned wood.

Twindow sizes in all groups may be reversed, width and height, making, in effect, 94 sizes,

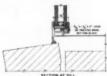
#### GROUP I



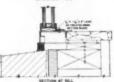
#### GROUP II



#### GROUP III



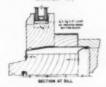
#### GROUP IV



#### GROUP V



#### GROUP VI



#### CARRARA STRUCTURAL GLASS



FOR SILLS. Waterproof Carrara sills are the kind of added feature that makes your house stand out above all others on the market. They are both attractive and highly practical.

• For truly distinctive, easily-sold homes, give people the added beauty and advantages of Carrara Structural Glass. Like fine Plate Glass, Carrara is mechanically ground and polished to a flawless, brilliant surface. It is unmatched in color, richness and elegance. It lasts indefinitely and is easily kept clean and sparkling with a damp cloth. 10 colors to choose from.

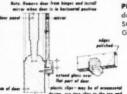


FOR TUB SURROUNDS. Prefabricated Carrora units are available for use in bathroom recesses. Panels are shipped to your job ready to install with all cut-outs made and holes drilled to your specifications. No cutting is necessary on the job. You have a variety of colors and a choice of 24- or 28 inch panels.

#### PITTSBURGH MIRRORS



PITTSBURGH DOOR MIRRORS. Several fulllength door mirrors made of Pittsburgh Plate Glass - installed in bedrooms and entrance halls, for example - give your homes that "extravalue" look. The additional cost is slight and well worth while. Five standard sizes-16, 18, 20, 22, 24" wide x 68" high-fit 90% of all interior millwork doors.



PITTSBURGH STRUCTURAL MIRRORS. To make rooms look larger, dark corners brighter, nothing can equal well-placed Pittsburgh Structural Mirrors. They are made from genuine Pittsburgh Plate Glass and offer superior reflectivity.

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PANELS OF GLASS BLOCK admit flood of daylight that is softened and diffused throughout entire office

(Continued from page 422) materials may be those of ordinary glass, Pyrex chemical-resistant glass, or colored in various hues.

#### Glass Block

Glass blocks are made of two sections, or lenses, fused together with a hollow, moisture-free chamber between. This dead air space makes an effective temperature barrier. Mortar edges are coated with a grit-bearing plastic coating to insure adherence to: the mortar. Masons with ordinary tools can lay glass block without difficulty. In most installations it is necessary to use an expansion strip at jambs and heads of panels, plus a good gungrade non-hardening caulking compound around all joints. Wall ties and panel anchors may be used to tie the panel to the masonry wall and to anchor the panel to the jamb.

Glass blocks have a compressive strength of between 400 and 600 pounds per square inch. However, glass block construction should never be used for load-bearing walls, and adequate provision must be made for support of construction above glass block panels.

Blocks are available in a wide range of patterns and several standard sizes, including radial blocks and curved corner blocks. Some manufacturers are offering "prefabricated" panels of glass block, and one at least is marketing a complete window unit in steel frame with sliding vision strip at the bottom. Ventilator blocks with stainless steel or glass louvres are also available to provide ventilation in situations where a solid glass block wall panel is not desirable.

#### Mirrors

Mirrors are sometimes made of ordinary drawn sheet glass, but better grades utilize polished plate glass, with highly polished surfaces and backs of either silver, gold, or casting bronze. Maximum sizes of mirrors are governed by maximum sizes of plate glass. Copper back mirrors are made up to 86 by 168 inches.

Mirrors may be fabricated with beveled edges ½ inch to 2 inches in width; the edges may be ground or polished and also mitred where mirrors butt together at an angle. Mirrors may also have surface-mitred lines where decorative effects are desired, or may be etched or sandblasted with decorative patterns. They are also obtainable in a wide range of color.

#### PLASTIC GLASS PRODUCTS

There are two main types of plastic glass products: those which are "pure" plastic, and those which are a combination of glass and plastic. The well-known "plexiglas" bombardier's lookout in military aircraft finds its civilian counterparts in roof hatches and skylights, in "blisters" which admit sunlight into modern ranch-type homes, in shower screen installations, decorative interior panels and partitions of many kinds.

Among plastic and glass combinaglass and more recent types of safety glass and more recent types developed to reduce shattering of glass. One popular plastic and glass material comes in a number of attractive colors, is frequently corrugated to correspond with the corrugations in metal sheet, and is used extensively in roof panels, siding, as awnings over doors and entrances, and on edge as interior partitions. It may be cut, sawed, and nailed and otherwise worked very much like wood. It does not shatter like glass, but has all of glass's normal



GLASS BLOCK on the farm serves dual purpose of light admittance and insulation from frost and drafts



PANELS OF GLASS BLOCK used to replace windows on sun porch of a modern farm home. Glass blocks were also used in openings on each side of the chimney



GLAZING compound being applied



VOIDS being filled when glass is set



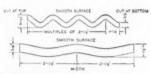
CAULKING COMPOUND being applied around outside of window frame to insure weather-tightness

heat-resistant and weather resistant quality. It is available with 25% inch corrugations in 8, 10 and 12 foot lengths and in widths from 26 to 40 inches, as well as in other sizes and in corrugations up to 4.2 inches.

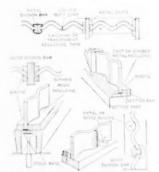
#### GLAZING AND CAULKING COMPOUNDS

For glazing wood sash, it is recommended that whiting putty or whiting putty and white Jead conforming to U.S.G.M. Spec. No. 283 be used. For glazing metal sash, use whiting putty with 5 per cent litharge or a metal sash elastic glazing compound. FHA specifications which call for whiting putty require a type consisting of finely powdered natural chalk, a minimum of pure tinting color, and pure raw linseed oil.

Elastic glazing compounds differ



DIMENSIONS of two of the types of corrugation that are available



SUGGESTED DETAILS for installing structural corrugated glass

from ordinary putty chiefly in that specially treated oils are used so that the compound will remain elastic even under extreme conditions of vibration and exposure to the elements.

Litharge, which is lead oxide, is added to putty to make it set from the bottom rather than just skimming the top. White Lead and Whiting Putty consists of 10 per cent white lead with regular whiting putty. However, the trend today is definitely towards proprietary mastic glazing and caulking compounds. These are easy to use, are said to remain permanently elastic. are unaffected by heat and cold, do not harden in the container, and do not waste before being used, as is frequently the case with small amounts of unused putty. While many caulking compounds are made up for application by gun or from a tube, some also are made in pre-moulded strips for easy application by hand. Almost all are available in a wide range of tints to match wall surfaces.

#### SPECIFICATIONS FOR POLISHED PLATE GLASS

General Principles Involved in Grading Glass-All flat glass contains some imperfections and the principle employed in grading is to exclude all defects that would be objectionable in a given grade. This is difficult to do since there are sharp lines of demarcation between grades. and experienced inspectors will differ in judgment as the quality of the glass approaches the limits of the grades. Small lights must be quite free from imperfections, as compared with larger ones, and the center of any sheet should be clear, whereas the edges may contain more pronounced defects.

Method of Examination—The method of examination is described in these specifications in order to make the results more uniform, and defines the condition under which glass should be examined because the distance from the glass, the angle between the glass and the line of sight, and the intensity of light all affect the visibility of imperfections.

These specifications should be interpreted by examining the glass in the following manner, with reference to the definitions of defects listed in the glossary:

The glass should be examined when placed in a position similar to that of a glazed light with the observer's eye on a level with the center of the sheet, and looking through the glass from a distance of about 36 inches into the light from a clear sky without any sun or any close background.

The visibility of waves, lines or cords depends chiefly upon the angle of observation, and the intensity of these defects can be classified on this basis. The values given for angles are the angles the line of sight makes with the sheet of glass when in a vertical position. Slight movement of the head horizontally through an angle of two or three degrees will make waves or lines more perceptible.

Acceptance or Rejection—Acceptance or rejection of a shipment or delivery should be based on an examination of the following quantities:

For orders of 100 lights or less, all should be examined; for orders of 101 to 500 lights, at least 50 per cent should be examined; for orders of 501 or more lights at least 25 per cent should be examined. Boxes are selected from the shipment at random.

If not more than 10 per cent of the lights examined are below quality, the shipment should be accepted provided the lights below the specified grade are not distinctly below the upper limits of the next lower grade.

If, however, an entire shipment of 500 lights or more is examined, not more than 5 per cent may be below quality.

Sizes and Thicknesses—The standard of thicknesses of plate glass are 1/8, 36, 1/4, 3/8, 1/4, 3/8, 1/4, 1/8, 1 and 1/4 in. Sheets are available 1/4 in. Sheets are available 1/4 in. thick in sizes having a maximum area of 250 sq. ft. Glass of 1/4 in. thickness may be furnished having almost any desired dimension under the following maximums: 120x280 in., 144x260 in., 160x240 in.

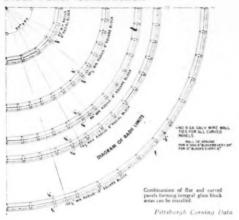
Tolerance in Thicknesses—The maximum and minimum thicknesses allowed should not be more than given thickness plus or minus one-half the difference between the standard thicknesses. The general variation in thicknesses should not be more than  $\frac{1}{12}$  in. for individual lights under 10 square feet in thicknesses up to  $\frac{1}{12}$  in. In thickness should not exceed one-half the total tolerance for that thickness.

Polished plate glass 1/4, 1/8, and 3/16 in, thick is carried in stock in the larger cities.

Tolerance in Dimensions—Variation from dimensions ordered should not be more than  $\frac{1}{32}$  in. per  $\frac{1}{38}$  in. thickness.

Grades—Plate glass should be furnished for glazing purposes in one of two grades as specified. These grades are known as silvering and glazing qualities.

#### Details on Curved Glass **Block Panel Construction**



#### Glazing Details for Double-Glazed Sealed Insulating Glass Units

It is extremely important to remember that doubleglazed sealed insulating glass units are factory-fabricated and, once made to specifications, their dimensions cannot be changed at point of use. Proper glazing clearances must be allowed on all units, as well as sufficient rabbet depth, so that the seal does not show. The chart below gives recommended data:

			Gless Ti	teck rense		
Symbol and Explanation	D.S.A. Plate 18" Pat- terned	A" She	et tilam	no° or	Plate	lerned
Glass Sizes	under 80 united inches;	under 80 united inches;	from 80-120 united inches?	under 80 united inches;	over 80 united inches;	over 120 united inches
A -Glazing compound Bed - Width	A"-16"	A"-14"	34"	16"	36"	36"
B -Glazing Clearance (all edges)	34"	14"	4.	36"	4.	14"
C - Metalized Edge - Depth	56"	14"	16"	34"	34"	35"
D-Total Rabbet Depth B+C	4"	4	15"1	A**	H	34**

#### Heat Transmission Table on Double-Glazed Sealed Units

			1. Value		
Number of	Glass		Air Space	ē.	
Panes	Thickness	None	14"	12"	
	1,*	1.16			
Single Glass	14"	1.15			
Double Thermopane (one air space)	38" or 34"		.65	.58	
Triple Thermopane (two air spaces)	14"		.47		

Libbey-Owens Ford Glass Co. Data

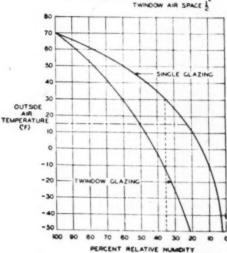
#### Sealed Double-Glazed Windows Available in 45 Standard Sizes

PICTURE WINDOW STANDARD SIZES—The 45 standard sizes below apply only to a construction of 2 pieces of 14" Polished Plate Glass with a 12" air space.

35'2"	×	36"	48"	×	72"	56':"	ĸ	70'a"
3512"	н	48'a"	48' s''	×	55'4"	58"	ж	6412"
3512"	K	603s''	48'a"	×	75"	58"	×	72'2"
36"	Ж	55'4"	4812"	x	50"	58"	×	8012"
36"	×	75"	50"	×	5612"	58"	×	9612"
42"	×	66"	50"	×	64'2"	58"	R	116'7"
42"	×	72"	50"	×	7212"	60"	ĸ	72"
46"	ĸ	48121	50"	ĸ	8012"	60'4"	x	665"
46"	×	72'2"	50"	×	9612"	60 <sup>1</sup> e"	K	75"
46's"	×	5212"	503a"	×	60'4"	64'2"	n	66"
46's"	×	5612"	5212"	×	58'a"	66"	×	72'2"
4778"	×	503e"	5212"	R	70's"	66"	R	84"
4770"	×	665a''	5514"	H	60³a"	66"	Ą	96"
48"	ж	48"	5612"	×	58's"	72"	×	84"
48"	×	60"	5612"	×	66"	72"	×	96"

#### **Outside Temperature Required to Produce** Condensation in Room Side Glass Surface

ROOM TEMPERATURE 70°F. OUTSIDE WIND VELOCITY IS MEH. ALL GLASS & THICK



#### LIGHT REFLECTION VALUES OF COLORS

Black	2%	Pink, Shell	55%	Orchid	67%
Brown	16%	Green, Pale	59%	Caen Stone	76%
Green, Forest	22%	Buff	63%	Cream	77%
Tan, Olive	43%	Blue, Sky	65%	Yel., Canary	77%
Gray, Silver	46%	Tan, Ivory	66%	Ivory	82%
Sage, Bright	52%	Gray, Cream	66%	White	89%

#### **Layout Tables For Glass Block Panels**

Using 36 inch motar joints in face brick

These tables show masonry opening sizes required when shape of glass block panel and number of blocks to be inserted have been determined.

#### 5%" SQUARE BLOCKS " MORTAR JOINTS

MO.	PANEL	TYPE	"A"	TYPE	roller.
OF UNITS	WITH OR THAIN	MASONEY OPENING WINTER	MASOMRY OPENING HEIGHT	MASOWRY OPENING WIDTH	OPENING MEIGHT
1	50,"	21,"	7*	.61,0	7*
2	11%"	B14"	1'-1"	1'-012"	,1'-1"
5	1'-554"	1'-21,"	11.70	1'-612"	1'.7"
4	1511%	1'-81,"	2'-1"	2'-015"	2'-1"
5	2'-996"	2"-214"		2'-612"	2'.7"
6	2'-11%	2'-81,"	_	3'-012"	3'-1"
7	3'.94,"	5'-214"	3'.7"	3'-612"	31.70
	3'-11%	5'-85,"	4'-1"	4'-014"	4'-1"
9	4'-5%"	4'-21,"	4'-7"	4'-612"	4'-7"
10	4-11%	4'-854"	9'-1"	9'-012"	9'-1"
11	5-514	5'-212"	9.70	9'-612"	
12	5'-11%	5'-85."		6.01%	
15	6-5%	6.21,0		6'-612"	
14	6-11%	6'-81.5"	7'-1"	7'-012"	
19	7'-994"	7 - 21 2"		7'-612"	
16	751154	7:412"		8 -0 12"	8'-1"
17	8-5%*	B -21.		8-617"	
18	8-11%	88,1		9'-011"	9'-1"
19	9.44.	9'-21,"		9'-612"	
20	9'-11%	9'-81,"		10'-015"	10'-1"
21	10'-5%	10'-21,"	10'-7"	-	-
22	10'-11%	10'-8'-"			
23	11:11%	111-814		-	
25	12'-554"	12'-25,"		-	-
26	12'-11%			-	
27	15-554"	13'-232		-	-
28	15'-1154'				
29	14'-5%	14'-25'			
50	14'-11%	14'-851"	19'-1"		
51	15-9%	15'-23,	15'.74		
52	15'-11%				
55	16'-94"	16'-21,	16'-7"		
14	16-114	16'-45'	17'-1"		
15	17'-596"	17'-295			
36	17'-11%				
37	18'-554"				
58	18'-11%				
39	19'-5%"	19'-25's			
40	19'-11%			-	
41	20 - 5 %	20'-25%		-	-
42	20-11%			-	-
44	21'-5%"	21'-214		-	-
		21'-8%		-	
49		22'-8',		-	
47	23'-594"			1	
48	23'-11%			1	
49	24-5%			1	
90		24'-85		1	1

#### 74" SQUARE BLOCKS " MORTAR JOINTS

-	PAREL	TYPE	"A"	TYPE	·*B**
DF UNITS	OR REIGHT	MASOMRY OPENING WIDTH	MASONRY OPENING MEIGHT	MASONEY OPENING WISTH	MASOWRY OPENING WEIGHT
1	714"	41,"	9"	Blg"	9"
2	175%	1'-01,"	1:-50	1'-412"	15-5*
3	1511%*	15855	2'-1"	2'-012"	2-1"
4	2'-754"	2'-456"	2'-9"	2'-812"	2'-9"
9	3"-3%"	3'-01,"	3-5"	3'-412"	3.50
6	3'-11%"	3'-81,"	4'-1"	4'-012"	4'-1"
7	41-784"	4'-41,"	4'-9"	4'-812"	4 -9"
	9'-3%"	3'-01,"	3'-5"	5'-412"	3.9"
9	9'-11%	5'-85."	6'-1"	6'-013"	6-1"
10	6.744	6'-43,"	6'-9"	6'-812"	6'-9"
1.1	75.554	7 -01,"	77.50	7'-412"	71.90

#### 7%" SQUARE BLOCKS " MORTAR JOINTS

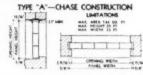
--- TYPE "A" TYPE "A"

100.	PAMEL	1177		11774	
OF UMPTS	OR MEIGHT	MASONRY OPENING WILDIN	MASONEY OPENING MELLINI	MASORET OPENING WISTH	MASONRY OPENING NEIGHT
12	7'-11%"	75-834"	8'-1"	8'-012"	
13	8'-7%"	8'-41's"	8.64	8'-812"	
14	9'-5%"	9'-01,"	9'-5"	9'-412"	
15	9'-11%"	9'-83,"	10'-1"	10'-0'2"	10:-1*
16	10'-7%	10'-41,"	109*		
17	11'-3%"	11'-01'	11'-5"		
18	11-11%*	11.044	12'-1"		
19	12'-7%"	12'-45g"	12'-9"		
20	13'-3%"	13'-0%"	13'-9"		
21	13'-11%"	13'-81'	14'-1"		
22	14'-754"	14'-45'	14'-9"		
23	15'-3%"	15'-01,"	15'-5"		
24	15'-11%"	15'-851"			
25	16'-756"	16'-411"			
26	17'-356"	17'-0%	17'-5"		
27	17'-1196"	17'-856"	18'-1"		
28	18'-756"	18'-451"	18'-9"		
29	19'-3%"	19'-0%			
30	19'-11%	19'-814"			
31	20'-7%	20'-411"			
32	21'-3%"	21'-0%			
33	21'-11%"	21'-874"			
34	22'-794"	2254%			
33	23'-3%"	25'-0%			
36	23'-11%	23'-8%			
37	24'-7%"	24'-41'			
38	29'-3%"	29-01,			

#### 11%" SQUARE BLOCKS W" MORTAR JOINTS

W0.	PAMEL	TYPE	"A"	TYPE	"B"
OF OWITS	OR REIGHT	MASONET DIFFERENC WINTER	BASOMEY OPENING NEIGHT	MASOMET OPENING WIDTH	OPERANG MEIGHT
1	1154	81,"	1'-1"	1'-012"	1:-1"
2	151156	1'-81,"	2'-1"	2'-012"	2'-1"
3	2'-11%	2'-81."	3'-1"	3'-012"	3'-1"
4	3'-11%"	3'.81,"	4'-1"	4'-012"	4'-1"
5	4'-11%	4'-81,"	5'-1"	9'-012"	9'-1"
6	551156	9'-81,"	6'-1"	6'-012"	6'-1"
7	6-114	6'-81,"	7'-1"	7'-012"	7'-1"
8	7'-1144	2"-81,"	B'-1"	8'-012"	8'-1"
9	#'-11%	8'-814"	9'-1"	9'-01;	9.1"
10	9'-11%	9'-81,"	10'-1"	10'-01.	10-1"
11	10'-11%	10'-81'4"	11'-1"		
1.2	11'-11%	11'-8'-	12'-1"		
13	12'-11%	12'-81,"	13'-1"	1	
14	13'-11%	15.85,			
15	14'-11%'				
16	15'-11%	15'-01,			
17	16'-11%				
18	17'-1154'	17'-81s'	181.		
19	18'-11%	18.85			
20	19'-11%				
21	20'-11%	20'-8'-			
2.2	21'-1186				
2.5	22'-1184				
24	23'-1154	23'-8".		1	
25	24'-11%	24'-85,	7		

#### **Details on Chase** Construction





Pittsburgh Corning Data

#### **Dimensions for Five** Types of Glass Block

BLOCK DIMENSIONS

	200 SERIES \$\0.05\0.02\0.0	300 588165 7%"x7%"x3%"	400 SERIES 11%"x11%"x3%"
SOUARE			
СОВИЕВ	Sh'anns	Shi sapus	Voo Two 200 Series Corner Blacks
BADIAL		0	

American Structural Products Co. Data

#### **Table Showing Radii Limits for Curved Glass Block Panels**

Radius	of Block in 90" Circular	Joint T	hickness nches	Re-
Inches	Arc	Inside	Outside	
	6" SQU	ARE E	BLOCK	
5212	13	1 8	1 38	Mini
561	14	. 8	15	mum
5634	15	16	1.	
61	15	1.5	16	
633,	16	100	1.0	
65	16	1,	15	
671	17	12	15	
69	1.7	14	1 24	
71 1	18	1,	7 (6	
73	18	5 16	3.6	

8" SQUARE BLOCK 69 74 74 74 79 80 84 85 Minimum

	8" RAI	DIAL B	LOCK	
19 34 34 34 34 34 34 34 46 46 46 46 46 46 46 46 46 46 46 46 46	5 6 6 7 7 8 8 9 9 10 11 11 12 12 13 14		Sec. E	Mini- mum

NOTE: Radii given to closest quarter inch; joint thickness to closest sixteenth inch.

38

13

Pittsburgh Corning Data

#### Recommended Erection Techniques For Glass Block Panels

Conventional Construction - Modular Coordination-12-Inch Masonry Walls

#### **Erection Procedure**

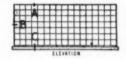
#### MASORRY CHASE STEP NO. 1 SHALL BE Z" DEEP x 4" WIDE, NOMINAL DIM. (PRELIMINARY PREPARATION) FORM CHASE OF SIZE SHOWN - IN APPLY ASPHALT EMULSION TO SILL. APPLY EXPANSION STRIP CONTINU-STRIP ASPHALT EMULSION EXPANSION STRIP MSERT BLOCK 1 % IN CHASE SPREAD LEVEL BED OF MORTAR AND PRESS WALL TIE INTO IT. STEP NO. 2 (LAYING INSULUX) MEEP MORTAR OUT OF EXPANSION JOINT. USE FULL HEAD AND BED JOINTS. SED WALL TIE IN CENTER OF MORTAR

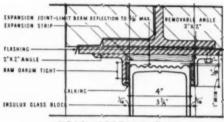
#### Modular Coordination



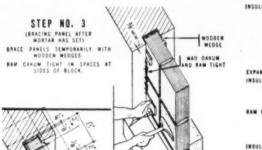
Details shown conform to ASA project A62. Panel position variable on grid lines; vertically 1" above or below, depending upon sill detail. Horizontally it may be on grid line or centered between—depending upon jamb detail.

#### Panels in 12" Masonry Walls



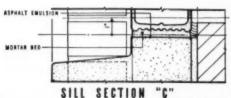


HEAD SECTION "A"



STEP NO. 4
(CLEANING AND CALKING)
REMOVE WOODEN WEDGES.
CLEAN PAREL.
CALK TO DEPTH OF %" WINIMUM.

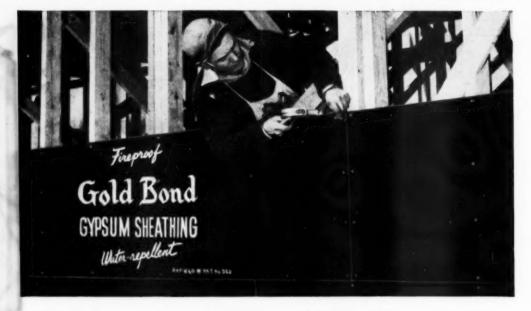
EXPANSION JOINT 36 INSULUE EXPANSION STEEL STEEL



American Structural Products Co. Data

USE ABOVE IN CONJUNCTION WITH TYPICAL DETAILS AND SPECIFICATIONS

# REVOLUTION IN BUILDING



#### Gypsum Sheathing replacing old style sheathing just as Gypsum Lath replaced old wood lath!

★ SAVES TIME. Gold Bond Gypsum Sheathing comes in one easy-to-handle size, 2' x 8'. Workman can place these in position in one-fourth the time required to handle four 6" x 8' wood hoards. One man can do an average size small house in a single day!

★ SAVES LABOR AND NAILS. One panel of Gold Bond Gypsum Sheathing requires only 28 nails compared with 56 for wood sheathing covering the same area. This means 50% less time needed to drive half

as many nails. Up to 60% fewer man hours than needed for wood sheathing.

★ LESS WASTE. No random lengths, no lap loss...each panel 2' x 8'. 1000 sq. ft. of Gold Bond Gypsum Sheathing covers 1000 sq. ft. of area.

★ PERMANENT FIRE PROTECTION. The gypsum center of Gold Bond gypsum Sheathing is fireproof. It can't burn.

★ GREATER STRUCTURAL STRENGTH.
Rock-like panels of Gold Bond Gypsum

Sheathing add greater structural strength to houses by actual test...they can't buckle, warp, contract, expand or twist.

Today when every nickel counts, Gold Bond Gypsum Sheathing is one sure answer to real savings for yourself and your customers, plus extra benefits for both of you. See your local Gold Bond Lumber and Building Materials Dealer today!

NATIONAL GYPSUM COMPANY
BUFFALO 2, NEW YORK

Fireproof Wallboards, Decorative Insulation Boards, Lath, Plaster, Lime, Sheathing, Gypsum Roof Decks, Wall Paint, Textures, Rock Wool Insulation, Metal Lath and Sound Control Products. You'll build or remodel better with Gold Bond



NSULATING boards made from wood fibers are waterproofed or otherwise treated with preservatives to make them resistant to moisture, rot, drastic changes in dimension, and fire. They combine insulation against heat and sound with structural strength and interior finish. They are a practical material for covering big areas quickly and economically. As a base for plaster, their insulating value is combined with high bonding strength.

Decorative insulating boards include sheets, plank and tile boards which are well standardized. Sheets are made in standard 4-foot widths, 8, 10, and 12 feet long. Plank is manufactured in 8, 10, 12, and 16-inch widths and lengths of 8, 10 and 12 feet. Tile is generally made in 12 by 12, 12 by 24, 16 by 16 and 16 by 32 inch sizes. They are prefinished in a variety of plain and colored surfaces and are as adaptable for remodeling and redecoration as for new construction.

Planks feature long edges which are beveled, with interlocking joints for which some manufacturers have also developed special clip systems for fastening to eliminate exposed nailing. Board plank may be put on either vertically or horizontally and in either uniform or random widths. When applied vertically, a single board will provide floor-to-ceiling coverage. Applied horizontally, one sheet will span up to 12 feet of wall area. When plank which varies in width is applied, furring strips must be at right angles to length of plank and preferably on 9- or 12-inch centers.

#### Sealing Joints

Either vertically or horizontally, there will be joints to be treated. The simplest joint treatment is to bevel board edges and bring butts into moderate contact. Joints are then concealed with cement and special tape. Paneled effects may be obtained by covering joints with batten strips or moldings which may be of wood, metal or insulating board. Joints can be accented in other ways for unusual decorative effects. One method is to insert a wood molding between boards, or insert molding strips into joints; or an open joint can be achieved by leaving a space of about 34 inch between units and painting the space a contrasting color

#### Installation

Ease of handling and speed of application have popularized insulating board. However, it is important that manufacturers' recommendations be followed as to specifications and procedures. When nails or clips are used, framing members or furring to which board is to be attached must conform to the size of the units used, in order

#### INTERIOR WALL AND CEILING BOARD AND TILE

#### Insulating Boards

Wood Fibre Plank and Tile Sealing Joints Installation Cane Fibre Board

#### Gypsum Boards

Preparing the Framework Double Wall System Nating Is Important Concealing the Jaints Special Problems

#### Asbestos-Cement Flat Boards

Boards are Easily Handled Scoring and Breaking Baards Barbed Nails Recommended Painting

#### Wallboard and Tile

Installation
Procedures
Decorative
Wallboards
Decorative Tile and
Tileboard

#### Acoustical Materials

Perforated Tile Glass Fiber Tile Mineral Fiber Tile

Mechanical Suspension Methods

#### Partition Systems

Steel and Glass Panels Movable Asbestos Walls Insulating Board Partitions



BEFORE

AFTER

Attic has been insulated and crudely partitioned before contractor was called in

to avoid use of extra materials. If the board is fastened with adhesives to continuous, solid, sound backing, there is no problem, but attention should be given to the kind of adhesive recommended by the manufacturer.

Where nails are exposed, 1½-inch finishing nails or brads should be employed. Nails should be driven at an angle, set below surface, and loose fiber tapped over the surface. Where beads and grooves permit, nails can be driven there to make them less noticeable. If nails are to be covered by moldings or battens, 1½-inch box common or galvanized nails can be used with the regular ½-inch boards.

#### GYPSUM BOARD

There are three thicknesses of gypsum wallboard—1/4, 3/6, and 3/2 inch. The length varies from 4 to 12 feet. The ½-inch board is made with square edges only. It is a lower-priced product designed to serve specific purposes, such as (1) temporary repairs and alteration work; (2) as a covering over old wall surfaces, and (3) for ceiling repairs where light weight is needed.

The \(\frac{4}{8}\)-inch standard gypsum board and \(\frac{1}{2}\)-inch wall board is available with square, beveled and recessed edges.

Insulating gypsum wallboard is made with all types of edges and thicknesses. Aluminum foil is firmly attached to the back surface of this board to provide reflective insulation and act as a vapor barrier.

Gypsum tile board is made in ½5-inch thickness only, and from 6 to 10-foot lengths. These boards have a square edge and an ivory surface but with tile indentations 4½ inches square.

Wood-grained gypsum board is

made in 48-inch thickness and from 6 to 12-foot lengths. Edges are square or beveled. A paper having a photographic reproduction of knotty pine, bleached or ribbon mahogany, walnut, or figured aspen is used.

#### Preparing the Framework

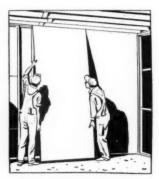
Gypsum wallboard, like any other wall or ceiling finish, requires level and true framework. The wood supports should be properly spaced and leveled in a workmanlike manner, Faces of studs should be lined up with the face of plates at top and bottom. Studs and joists should not exceed 16 inches on centers, except that their spacing may be increased to 24 inches when 1/2-inch wallboard is used. Substantial nailing surfaces should be supplied at all interior and exterior corners so that the ends of boards forming the corners may be securely nailed.

Window and door frames should be ordered for ½s or ½-inch grounds, depending upon the wallboard used.

#### Double Wall System

The gypsum double wallboard sys-

tem calls for two layers of gypsum wallboard, each 3%-inch thick. The base layer is nailed vertically to the studs, and the face layer is applied horizontally over the base layer with



Vertical application of wallboard sheets is first step in double-wall construction. Single-wall may be either vertical or horizontal; if horizontal, first sheet goes on at top of wall



Gypsum board can be cut easily without sawing. Score with sharp knife against



straight-edge and break oil as shown



BEFORE

Gypsum wallboard, easily cut to fit around windows and into odd shapes under eaves. converted barren attic into attractive apartment. Wallboard takes casein or oil-base paint, wallpaper or other decorative materials

a special adhesive. Joints are sealed with a reinforcing tape and a special cement. The finished result is a smooth wall that meets exacting requirements.

The base wallboard is first nailed to the ceiling, parallel to the joists with long edge joints occurring on the joists. Board is then applied to sidewall framing members with joints on the studs.

After the board is measured to proper dimension, it is scored along the dimension line with a knife and bent at right angles, then scored on the underside of the fold. The board then breaks with a clean, straight edge. It may be sawed, also,

A special cement is mixed using two quarts of clean lukewarm water per five pounds of adhesive. Adhesive is stirred into the water and mixed to a creamy consistency. It is then "buttered" on the back of the face layer of gypsum wallboard with a notched trowel.

The "buttered" side is placed against the base layer and the face board is nailed, using only a few nails, the wallboard surface, or, if not so which merely hold the face board against the base layer until the cement sets. The nails are driven so that the nailheads are slightly below



Second stage in double-wall construction with wallboard in horizontal application as finish layer

dimpled, they can be subsequently countersunk. The ceiling is applied

The first, finish layers are attached

fewer joints, and less ladder elimbing

or scaffold erecting. The "cross application" of the face and base layers of the gypsum wallboard add strength to the wall, which, with the two layers of 3/8-inch wallboard, is 3/4inch thick.

to the upper section of the sidewalls

in a horizontal position. The face layer is nailed here also to afford

temporary fixation until the cement

After the face layer has been in

place long enough for setting and

drying of the adhesive, usually about

24 hours, all temporary nails in the

face layer are countersunk, unless

they were dimpled when originally

face layers to the walls makes for

The horizontal application of the

driven.

#### Nailing is Important

Proper nailing for single and double wallboard application is highly important to achieve maximum strength and durability of the wall. Use only 5-penny cement-coated nails 15% inches long (13 ga., 17 head). Start nailing at center of the board and work outward, spacing nails 5 to 7 inches apart, but not closer than 38inch to edges or ends of board.

Area of the board immediately surrounding each nail must be held tightly against the framing while the nail is being driven. A crown headed hammer should be used. Each nail should be driven until the head rests in a slight depression in the board so the head can be concealed by cement. Surface of the paper must not be broken by the nailhead or hammer.

#### Concealing the Joints

Gypsum wallboard joints can be so effectively concealed that it is im-

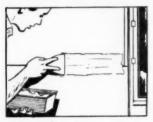


Wallboard fits well into odd-shaped wall or ceiling greas, stands up when used around coves and for valances



Showing application of wood-grained wallboard around window gypsum frame. Accurate fit is possible

#### **HOW TO CONCEAL CRACKS AND NAIL HOLES**



Apply cement to channel of joint



Reinforcing tape is embedded in cement, and excess cement removed. Tape is covered with cement



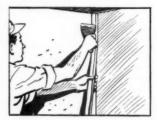
Second coat of cement applied over tape and edges is feathered out evenly



Mail holes are first "dimpled" gently so as not to break surface of the board. Dimples are then filled with cement



Sandpaper surface lightly after cement has dried to remove any rough spots



Corner joints are finished similarly to flat-wall joints. Tape is creased down the middle before applying



Tape is folded over corner and cemented as in flat-wall joints to cover outside corners



Outside angles of curves are taped with tape cut as shown to allow for bend. Board is scored on back to follow curve



Each board must be tight against furring before concediing nail heads. Care must be taken to avoid breaking surface of board when nailing or dimpling

possible to see them once the walls are decorated. In concealing a joint, a special cement is first applied (see illustrations). Only joint cement recommended by the gypsum manufacturer should be used. This is mixed to a putty-like consistency. It is applied by a broad knife into the channel formed by recessed edges of adjoining boards. Moderate pressure is used, making sure that the channel is filled evenly.

A perforated reinforcing tape is

then applied over the cement to the full length of each joint. Tape is imbedded in the cement. Excess cement is removed, then the tape is covered with a thin layer. At this time, all nailheads should be concealed by "spotting" with cement.

A second coat of cement is applied over the joint area, and feathered out as far as necessary to obtain a smooth, even surface. Cement is applied to end joints in this manner, but feathered out a few inches farther than recessed joints. A third coat is recommended and the surface should be left as smooth as possible.

Before concealing nailheads, it should be made certain that each board is tight against the framing and will not move on shanks of the nails. Depressions should be filled surrounding the nailheads, with the first coat of cement. After drying, a second coat is applied. For better concealment, a third coat is recommended, left as smooth as possible,

If necessary, the last coat can be sanded lightly with fine sandpaper.

There is little difference between finishing corners (both inside and outside) and flat wall joints. The exception is that the tape is folded lengthwise down the center to fit the corner. These joints are also treated with at least three coats of cement, feathered out and left as smooth as possible.

#### Special Problems

Gypsum wallboard is quickly made to conform to curved surfaces. It is done by scoring the back paper of the board at intervals and breaking the core beneath each cut. The board is then nailed to the curved contour and corners are treated with the reinforcing system described previously, except that the tape is snipped at intervals along one side and applied so that it conforms to the arch.

Gypsum wallboard may be painted, calcimined or wallpapered. A varnish size should be applied to the surface of the board before papering or applying calcimine. This size will permit ready removal of paper or calcimine when redecorating. A primer should be applied to the surface of the board when paint is used.

#### ASBESTOS-CEMENT FLAT BOARDS

An attractive stone gray in color, asbestos boards are hard and smooth on one side and slightly textured on the other. They are a practical material for structural wallboard use and are highly serviceable for exterior surfaces as well as interior walls.

Made in sheets 1/8 to 1/8-inches thick, four feet wide and eight feet long, the boards are light enough to be handled easily. Nailing is the usual method of application, although they can be put on with a special adhesive, supplemented by nails, mouldings or other overlapping devices. As an alternate to nails, wood screws may be used.

The boards may be cut by sawing, shearing, or by scoring and breaking. Special cutting jigs also are available. When cutting, the finish side is placed up so that any roughness will be on the underside. A carpenter's 10-point saw with little set will cut satisfactorily. Mechanical saws with abrasive blades also are used effectively.

#### Scoring and Breaking Boards

Scoring and breaking is one of the simplest ways to cut the thinner boards. The sheet is scored against a straight edge, deeply on both sides, with a tool such as a knife, ice pick or awl. A scoring tool can be made from a 12 to 14-inch flat smooth file set into a heavy wooden handle. Shape it like a wood chisel, then "relieve" the back of the point by grinding the long face edge of the file at about 30 degrees so that a face about his inch wide is produced across the back of the cutting edge. Improvised "C" clamps hold the sheet in place on a cutting table while it is snapped across the scored line.

All 1/4-inch thick boards may be nailed directly. Other thicknesses may require drilling or punching of holes to receive nails. Manufacturers vary in their recommendations as to the maximum thicknesses that can be nailed directly. Nails are driven in straight, snug against the board, but are not sunk into the surfaces. Nail spacing recommendations vary somewhat with different makes of boards manufacturers' instructions should be obtained on that point. The same applies to spacing of nails away from the edges. Nails first are driven near the starting edges of the sheets. working toward the opposite edges.

#### Barbed Nails Recommended

Barbed or ring-shanked nails having sharp needle points are recommended. They should be long enough to penetrate well into good sound wood. For inconspicuous interior work, small countersunk head nails may be used. For ordinary interior work, and for nailing against wood sheathing or studding, use a hot dipped galvanized asbestos shingle nail. Galvanized lead-headed nails are employed for exterior work. Large headed nails should be used for ceiling work.

Any punch used for steel or metal work having a female die and male punching bit will work with asbestoscement sheets provided the "holddown" is not tight. Cold or drift punches that do not taper at the end are satisfactory. Holes also can be drilled with standard twist bits in hand or electrical drills. The holes are formed slightly larger (1/32 inch) than the nail or screw to allow for expansion, except when using countersunk fasteners, in which case the hole is countersunk slightly smaller than the head of the fastener to assure a neat, tight job.

#### Painting

For interior work, painting systems which are suitable for application over plaster walls are satisfactory, but call for a special primer. The primer should be applied according to the paint manufacturer's directions.

#### WALLBOARD AND TILE

Wallboard and ceiling tile made of layers of wood or fiber or paper bonded with resins are available. Wallboard panels are waterproofed and measure up to 8 feet wide and 18 feet long. Panels 36-inch thick with pebbled surface are ideal for either painting or papering.

Dry-built, full-wall construction is economical with the use of these laminated fiber panels, waterproofed and with strong insulation value. The wall panels come in standard sizes 4 feet wide by 6, 8, 10, 12 and 16 feet long, and full-wall sizes 8 feet by 12.



Application of cement to back of tile is first step in this method of applying tile to ceiling



Tile is applied to ceiling, starting at center with temporary straight-edge nailed up for a guide

14, 16, and 18 feet long. Surfaces are presized to provide a perfect painting surface. Ceiling tiles of similar material are cut to 12-inch squares, with edges moderately beveled. Manufacturers claim they are so completely waterproofed that they can withstand even unusual moisture conditions. Their natural finish is decorative, washable, and will take oil-base paints.

#### Installation Procedures

This type of board has its own "floating" fastener which makes face nailing unnecessary and eliminates visible nails and nail holes. It is ap-

(Continued on page 440)

## Speed completions... with ///SULITE



### cut the dead load ceilings like these!

Save man-hours, expedite the job! Whether your next ceiling job is new construction, remodeling or repair, Insulite tileboard can save you important time! Insulite, you see, goes up quickly and easily in just one simple operation...goes up in a fraction of the time required for heavy plaster ceilings!

Reduce dead load, save steel! With present limitations on the use of steel, dead load can often mean the difference between a new building and no building at all. Lightweight Insulite tileboards cut your dead load to the bone . . . often eliminate the need for steel beams entirely!

For complete facts on the complete line of Insulite ceiling and acoustical tileboards, contact your Insulite dealer, or drop us a card today!

Pictured at left: Insulite Lusterlite Tileboard, available in both square and rectangular shapes with a smooth, durable factory-painted finish. Easy to clean or repaint. Has high lightreflection. Goes on quickly, easily and securely with staples, nails or adhesive.



For low-cost acoustical treatment, ask your dealer for Fiberlite. It's a double-duty acoustical tileboard that insulates as it hushes sound! Has a rich. travertine texture and adds beauty to any interior. Made from tough, natural wood fibers. Easy to clean. Can be repainted.

Want a perforated tileboard? Get Acoustilite from your Insulite dealer. This new perforated tileboard is available with Insulite's heavy-duty flanged tongueand-groove joint for application over furring strips or the butt-edge joint for adhesive application. Both are extra-easy to apply, clean and repaint!

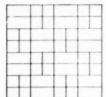
Build and insulate with double-duty INSULITE

Made of hardy Northern wood

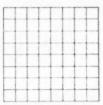


INSULITE DIVISION MINNESOTA AND ONTARIO PAPER COMPANY, MINNEAPOLIS 2, MINNESOTA

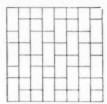
#### Common Patterns Used in Application of Ceiling Tile



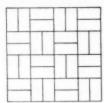
CEILING PATTERNS: This design utilizes units 12x12 inches and 12x24 inches or 16x16 inches and 16x32



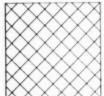
THIS simple square pattern is easy to apply with either 12x12-inch or 16x16-inch tileboards for a trim effect



HERE square and rectangular uhits are combined. Large units are best for big area installations



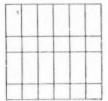
THIS loose basket weave pattern results from combining squares and rectangles in manner shown



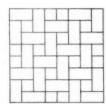
HERE 12x12-inch or 16x16inch units are applied diagonally to achieve an attractive diamond pattern



ESPECIALLY good for large rooms, ashlar patterns may be obtained by the staggering of joints



IN THIS pattern squares and rectangles are alternated. Suitable for uniform or varied colored ceilings



A VARIATION of the basket weave pattern, this design is most effective when used in large interiors

(Continued from page 437)
plied directly to studding or furring,
which anchors panels securely from
the back. The fastener is so constructed as to permit movement of
the panel, due to normal structural

settlement, both vertically and hori-

zontally.

These wall panels are easy to handle; even a large 8 by 18-foot panel can be handled by two men using wooden "U" clamps. Panels come with vapor barrier applied if desired. Moldings for cornice, panel, inside corner and outside corner are also furnished by the manufacturer and are commonly stocked by lumber dealers; when used, panels should be painted before moldings are installed.

#### Decorative Wallboards

Also available are 7-ply laminated fiber panels in striated design, guaranteed to be permanently crackproof and possessing effective insulating qualities. They are compressed to 1/4inch thickness, and are available in sizes 4 by 8 feet or on special order in larger sizes. They are applied directly to studs with the same type of fasteners previously mentioned. For baths and kitchens a pre-finished fiber board is available in giant size panels 8 feet wide by 12 feet long, as well as standard 4 by 8-foot size with the glossy tile-like surface embossed in various colors in squares.

One manufacturer offers a wallboard which comes in a rich simulated leather finish closely resembling fine split cowhide, which is recommended for wainscoting, decorative panels or over-all wall treatments. Panels are 8 feet long in 3-foot and 4-foot widths, available in colors and textured designs. No further treatment is required after installing.

Board, tile board, finish plank, and beveled interior board are also available in new colors and a variety of textures and sizes which do not require painting or papering and can be put up with nails or staples.

#### Decorative Tile and Tileboard

Decorative tileboard is used almost exclusively on ceilings. These boards have interlocking tongue-and-groove joints with extra-wide nailing flange so that adjoining units fit together firmly and smoothly, and allow concealed fastening. They can be applied with stapling gun, without use of special clips. Many attractive patterns may be worked out with ceiling tile. used with or without color variations and combinations. Intricate patterns, however, require extra care in installation. They start from the center of the ceiling, and care must be taken to insure adequate furring where tiles of varying sizes and shapes are used.

#### ACOUSTICAL MATERIALS

Perforated acoustical fiberboard tile are particularly desirable because of their comparatively low cost and ease of maintenance. Most are factory painted and require no finishing treatment on the job but may be painted without losing acoustical qualities. The beveled units may be cemented to plaster, concrete, plaster-board ceilings, or mechanically fastened to wood furring or directly to plasterboard. The manufacturer provides a special self-clinching nail for attaching directly to plasterboard.

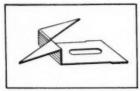
Other acoustical units consist of panels with perforated asbestos-cement facing 3 is inch thick, used in conjunction with sound-absorbing elements. Popular sizes are 24 by 24-inches and facing is installed with square edges and butt joints which minimize or eliminate all tile lines.

#### Glass Fiber Tile

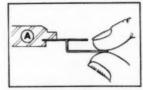
Acoustical boards and tile made of glass fiber are well suited to suspended ceiling constructions because of their low weight and dimensionally stable characteristics. Standard acoustical adhesives may be used. However, they are not recommended for use on surfaces which are subject to frequent condensation or under conditions where the tiles will remain wet, as water-staining may result.

#### HOW TO USE CLIPS IN THE APPLICATION OF CEILING TILE BOARD AND PLANKS

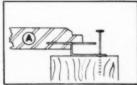
#### Application of T & G TileBoard and Plank



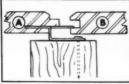
1. Insulite Clip, double pronged. Slot for adjustable nailing.



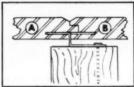
2. First, insert clip by sliding prong along lower surface of tongue of Unit A as indi-



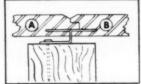
3. Push the prong into the board until the clip is firmly against the edge of the joint and using a 2d (1') box nail, secure clip and board in desired position. Drive nail flush with clip.



4. Now, slide Unit B onto the protruding prong of the clip. Keep prong flath with lower lip of groose.

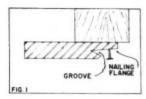


5. Bring units together gently so that the tongue of Unit A is properly seated in groove of Unit B.

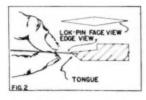


6. In working from the groove side of tileboard, the clip is first inserted into the groove with the nailing slot extending outward.

#### Application of Lok-Grip Joint TileBoard and Plank



GROOVE TONGUE FIG



- I. Nail through nailing flange of first unit (Fig. 1).
- Start Lok-Pins just below tip of tongue of second unit (Fig. 2).
- (Fig. 2). Push tock-Pins half way into tileboard and at a slight angle with the surface (Fig. 3).

  Place this second unit so that Lok-Pins enter groove behind nailing flange of first unit (Fig. 4).
- Firmly press second unit into position, engaging the inter-locking joint and firmly encharing Lok-Pins into both units (Fig. 5). Secure opposite edge of second unit by nailing through flange.
- 7. Continue in same manner with succeeding units.





Data from the Insulite Div., M&O Paper Co.

Common sizes in glass fiber tile are 12 by 12 by 3/4-inch and 1-inch beveled; 12 by 24 by 34-inch and 1-inch beveled, and cross-grooved to simulate 12 by 12-inch; and bevels of \$2inch. Either plain or perforated types are available. Both are factory decorated with a white water-base paint and may be repainted with water-base paint, although oil-base paint is recommended if repeated washing is

The glass fiber board is manufactured in four sizes: 25% by 48 by

1-inch beveled, cross-grooved to represent 12 by 12-inch; 24 by 48 by 1inch beveled, cross-grooved to represent 12 by 12-inch; 24 by 37% by 1-inch beveled on two length edges, cross-grooved at 12-inch intervals

(Continued on page 445)

# MOW this Nu-Wood

#### Exclusive TONGUE AND GROOVE Nu-Wood Tile for Clip Application!



A Nu-Wood exclusive—the Nu-Wood Clip System that assures beautiful wall and calling surfaces for years to come. The clips are reversible, fitting either the tongue or groove joint of file. "Center of ceiling" starting is made possible with the Nu-Wood Clip System, for easier and feol-proof application.

Complete wrap-around support—the

Nu-Wood Clip completely "wraps" tile tangue and groove edges with

metal-supporting both tiles. Thus,

ceiling tiles stay in place when ap-

plied with Nu-Wood Clips, assuring

a level surface.



Self-aligning—the Nu-Wood Clip invisible neiling "fleets" the tile in perfect alignment, compensating for slight irregularities in the neiling surface. Also, minor edjustments in tiles may be made to true up joint lines, even affer clip is fastened in place.





Sturdy, thicker flange for better staple application—staples hold securely with less chance for "pull through" in the Nu-Wood Wide Flange Tile.



Nu-Wood Wide Flonge Tile is available with the famous Sta-Lite light-reflecting surface, which actually grows lighter with age . . . reflecting 76% of light directed to surface without harsh glere.



Shadow-Line Bevel—just as with Nu-Wood Tongue and Groave Tile, the Wide Flange Tile has the distinctive Shadow-Line Bevel . . . providing "pencil-thin" joinings, preferred for beauty.



Tighter joints with Nu-Weed Clips surfaces stay cleaner because air movement through title joints is reduced, thus minimizing collection of surface dirt. Insulation value of title is improved because of tongue and groove joint,

#### No other manufacturer offers you this Complete line of insulation board products

A superior interior finish line-including tile, plank, board and Lok-Panels; also in thin board. Predecorated - Sta-Lite, Kolor-Fast or Variegated finishes provide special wall and ceiling decorative effects.

Famous Nu-Wood Shadow-Line Bevel gives 'pencil line" joint lines to suit the modern trend toward simplicity in interior decoration. Elimination of bead on Nu-Wood Plank also gives modern, streamlined appearance.

#### Nu-Wood sturdy structural insulation board products

Supplementing the Nu-Wood interior finish line is a complete line of Nu-Wood structural products, including extra strong Nu-Wood impregnated insulating sheathing, Nu-Wood insulating lath, Nu-Wood roof insulation, Nu-Wood shingle underliner and Arrowhead board.

#### Plus Nu-Wood acoustical tile

Provides modern sound correction—better looking application because of the famous Nu-Wood Tongue and Groove Joint and Clip System application for self-aligning tiles. Distinctive Shadow-Line Bevel for new beauty.



**Nu-Wood Insulating Sheathing** -exceptionally strong nail-holding sheathing impregnated with asphal waterproofing agent for maximum weather protection. 25/32"
1/2" thicknesses.



Nu-Wood Shingle Underlinerprovides popular deep shadow lines when used as first course—gives added insulation when shingles are applied - cushions shingle nailing shock-saves time, eliminates waste.



Nu-Wood Insulating Lath-easyto-handle units—V-type tongue and groove joints provide interlocking long edges-square cut ends-low thermal conductivity for maximum



Arrowhead Board-a utility-grade insulation board fulfills a multitude of uses-predecorated for low-cost interior finish for furm buildings, summer and lake cottages, homes



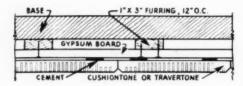
Nu-Wood Shadow-line Boarddistinctive, pencil-thin shadow-line bevel, at no extra cost, eliminates need for batten strips or other special joint treatments - provides pleasing wall appearance.

Wood Conversion Company

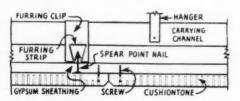
Dept. 119-42, First National Bank Bldg. St. Paul 1, Minnesota

Makers of Nu-Wood" Insulation Board Products and Balsam-Wool' Sealed Insulation Sold by Lumber Dealers only

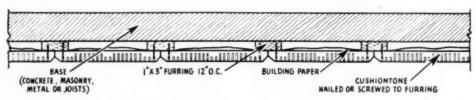
#### **CEILING TILE BOARD INSTALLATION DETAIL**



Cement application over furring. When the base surface (masonry, rough plaster, rough concrete, or open joists) does not provide a satisfactory base for cement application, a recommended method is to install 1x3-inch cross furring, 12 inches on center and cover with gypsum board or lath. This provides a sound base for cementing.

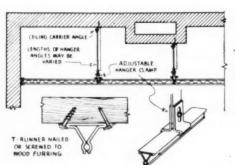


Mechanical installation of acoustical tile. There are several mechanical suspension systems which can be used for application of acoustical tile. The diagram above shows one recommended method. Metal carrying channels and furring strips support a surface of gypsum sheathing. Ceiling tile is screwed to this surface.

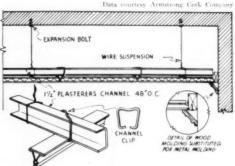


Application of acoustical tile to wood furring by nails or screws. By the use of cross furring 12 inches on center, acoustical tile may be applied by nailing or screw-

ing, in spite of an unsatisfactory base surface. When this method is used it is important to cover the furring with a layer of building paper to prevent "breathing" at the joints.



Mechanical suspension of ceiling tile. The metal Trunners, to which the ceiling tile metal pans are clamped, may be nailed or screwed directly to wood, or suspended



from metal hanger angles, as shown above at left. Another method, shown at right, calls for wire suspension of channels, to which T-runners are clipped 24 inches o.c.

(Continued from page 441)

\$\frac{31}{41}\$-inch from selvage on width; and 24 by 36 by 1-inch beveled on all four edges. Boards will span 24 inches without sag and without cross support. Longer spans need stiffening with simple members inserted into the long edges of the board during application.

#### Mineral Fiber Tile

Another type of acoustical tile is made from mineral fibers. It is designed in both a marble pattern and etched surface. The various methods of installation with adhesives, mechanical erection, or nailing direct to wood strips according to manufacturers' specific recommendations all have advantages depending upon the specific type of construction, but adhesive application is the most widely used method and is recommended where a suitable base exists.

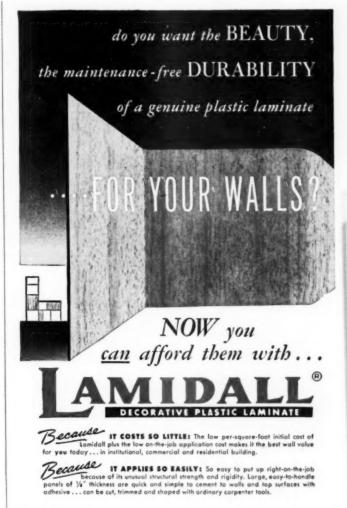
#### MECHANICAL SUSPENSION METHODS

Cold-rolled, 16-gauge steel channels are wired in some installations to furring channels for suspended ceilings or fastened directly to ceiling or wall construction for directly applied acoustical finish. Channels are set at approximately the center line of the ceiling tiles, eliminating the lining-up with the joints. Combination "clip-snap-on" metal acoustical wall trim composed of extruded aluminum or rolled 22-gauge galvanized iron is angle punched to receive the clips which not only hold the tile in place but also receive the finished trim after the job is completed. After the ceiling is laid, cove molding is snapped into place, using the clips already set to hold the tile.

One method of suspended ceiling construction which manufacturers claim requires only three operations for installation permits tile to be either mechanically fastened or cemented to solid backing. A nailing channel is attached to carrying members by use of a spring lock clip; a solid backing of gypsum board is nailed to the channel with a special type of nail which forms a locking loop around the rod; ceiling tile or acoustical tile is then either cemented to the solid backing or fastened to the backing by means of small wood

Another system for fastening building materials used for ceiling and wall construction is an all-metal system which has the following basic

(Continued on page 446)



I MAGINE! the beauty . . . the lifetime durability of a genuine Plastic Laminate , . . now at such an amazingly low cost it will fit any building budget. Lamidall is YOUR answer wherever you want a hard, glassamooth, permanently decorative surface for walls, wainscoting, ceilings, or top surfaces. It's available in panels up to 4'x 12'. . in a wide range of handsome unusual wood grains, plus a selection of distinctive, decorative colors and patterns. Durable Lamidall will not crack, chip or peel . . . it resists heat, stains and hard blows and is so easy to wipe clean.

Where you want beauty plus structural strength plus economy, you'll want to use Lamidall . . . and you can in hundreds of applications for institutional, commercial and residential building.

MATCHING MOULDINGS! Easy-to-use, matching plastic laminated mouldings of exact Lamidall patterns and colors, make possible the greater beauty of continuous wall decoration.

PERFECT FOR TOP SURFACES! Lamidall is so easy to apply ... so beautiful ... so durable.

Send for Free Samples ! Prove it to yourself ... see the beauty ... test the durability. Write also for complete details in new full-color folder.

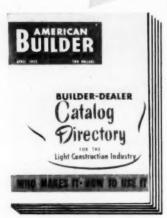
Lamidall Plastic Laminate is a product of

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Rough surfaced acoustical tile material has decorative as well as acoustical function. Material may be treated with paint without impairing its sound-absorbing qualities

devices: a continuous rigid and lightweight furring member of zinecoated steel and an annular nail, various clips and splines. The dovetail profile of the furring member incorporates an inverted V-shaped nailing groove through its length. The nail is forced into the nailing groove of the metal furring member and locked in place by its shoulders.

For further discussion of suspension systems see the section on "Lath, Plaster and Aggregates."

#### PARTITION SYSTEMS

Of particular interest to the builder who has occasion to erect small offices or light commercial and industrial structures, office partition systems are available in various combinations of wood and steel, pre-finished boards, insulating boards and other combination materials.

#### Steel and Glass Panels

Several types of steel and glass panels are available, most of which offer interchangeable panel and door sections, universal doors, reversible hardware, identical fittings between panels and linking panels to posts, and other conveniences of erection. Provision is made within the panels for wiring and similar facilities. Installation is by simple channels set in floor and ceiling, with the panel fastened quickly in place; removing it to another location at a later date is easily accomplished.

#### Movable Asbestos Walls

Asbestos panels which are integrally colored at the factory are now available for industrial and commercial office installations where light weight and fireproof qualities are important. The panels may be installed in either vertical or horizontal position for design effects. They look and function like permanent walls, but are easily taken down and reassembled.

Panels are hung on standard steel studs to form a rigid double-faced 4-inch thick partition having great strength and rigidity. For schools, blackboards and chalk rails can be incorporated as part of the partition, and panels are equally useful in laboratory installations. Steel studs which carry the panels are set at top and bottom in steel channel which is fastened to floor and ceiling, easily removed and relocated.

#### Insulating Board Partitions

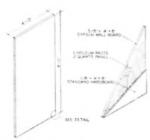
Partitions are also made of laminated cane fiber insulation board, surfaced on both sides with asbestoscement board and bonded with a moisture-proof highly vapor-resistant bituminous adhesive. Result is a strong, insulating, and maintenance-free exterior and interior finish in a single-thickness material. These panels are used in industrial and commercial buildings as partition walks, as well as in home construction.

Readily workable with regular

carpenter tools, panels may be sawed. drilled and nailed. Partitions are available in three types: (1) splined non-bearing partition grooved on long edges to receive a 316-inch by 134-inch wood spline. This type of construction eliminates need of framing members or battens at the joints. (2) Load-bearing partition-panels are framed between 2 by 4 or 4 by 4 inch studs set approximately 4 feet 2 inches on center and held in place with wood stops nailed to studs around all edges on both sides of panels. Studs are tied together by a suitable top plate of proper size to carry required loading. (3) Battened non-hearing partitions are similar to splined non-bearing partitions except that the spline is omitted and 1 by 3 inch or heavier wood battens or equivalent metal battens are placed on opposite sides of all vertical joints and fastened together by nailing or bolting through batten on one side and through panel into batten on other side. Top and bottom plates are rabbeted to receive panels and batten stop at plates.

#### Research Proves Value of Thin Wall Closets

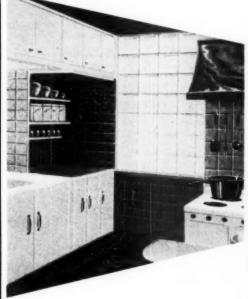
Closets, designed with full-access fronts and engineered so they can be built with studless walls, were recommended by the Small Homes Council to the assembled builders and contractors that attended the seventh



THIN WALL PANEL showing double lamination.  $^1s$  " x 4" x 8" sheet of hardboard is placed on  $^3s$  " x 4" x 8" gypsum board. These two boards are secured together with linoleum paste applied with a notched cement spreader. Allow paste to set under pressure for 24 hours

annual short course in residential construction, conducted recently at the University of Illinois. The design of the closets was the result of a (Continued on page 448)

TILE WALLS... THE MODERN WAY



THE SAME OF THE SA

In every field of building and renovating activity, ALTICO "WALLUMINUM" is setting new records for production, utility and savings on costs. Simply beautiful . . . and beautifully simple to handle, install, maintain, "WALLUMINUM" gives greater freedom in planning to the architect, problem-free labor to the builder and overall savings to the contractor of as much as 50%!

ALTICO "WALLUMINUM" comes in 20 distinctive colors that maintain their sunny-bright gloss indefinitely. Applies to any wall, painted or raw, weighs only 14 oz with mastic and makes them waterproof, vermin-proof and fire-resistant.

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ALLOY TILE CORP.

BELLEVILLE, NEW JERSEY

vear-long study made under a research grant given to the University by the Lumber Dealers Research Council.

These closet-walls are for the type of house where the loads are placed on the exterior walls through roof trusses or other methods of framing, thus relieving the interior partitions of all structural weight. It was pointed out that closets as generally built today are "over engineered" and expensive. They occupy more floor area than necessary, and often result in inefficient storage space, much of which is inaccessible. The conventional door-in-a-wall closet limits the access to the closet because the side and the space near the ceiling are blocked by the jamb and head of the door. Due to these restrictions much space is either wasted or is difficult to reach.

The recommended closet-wall construction presented by Professor Kapple of the Small Homes Council, utilizes the principle of "three-way stiffening." The closet shelf becomes a structural element and also serves to divide the closet into two compartments—the lower one six feet high, the upper one two feet high.

WOVEN BASSWOOD SPUNT
FLEXIBLE DOOR

THIN-WALL

FLEVATION

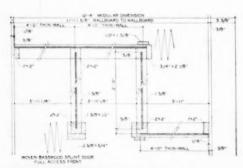
ELEVATION

A-0-THIN-WALL

IT-II 5 6' BETWEEN WALLBOARD

12-4PLAN

AN EXAMPLE of the system of construction for a three compartment closet wall designed to fit between 4-inch stud walls spaced 12-feet 4-inches o.c. and finished with 3s-inch thick gypsum board. The panels are dimensioned to fit in a space with a ceiling height of 8-feet to 8-feet 12-inch—finished floor to finished ceiling



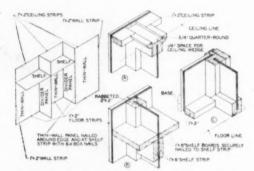
THREE COMPARTMENT CLOSET showing framing members

"The closet," Professor Kapple said in explaining this construction, "can be considered as a series of small compartments. We all know how a box can be made very stiff with rather light construction because of the 'three-way stiffening.' In this closet we achieved 'three-way stiffening' by making a structural element out of the closet shelf.

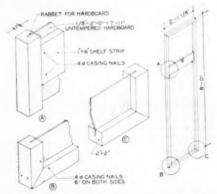
"Hence, we have the shelf, the divider partition or side wall of the closet, and the back wall all fastened together so as to stiffen each other. When we consider this form of stiffening, it becomes possible to use much lighter panels for the back wall and dividers in the closet. This new concept of closet construction makes it possible to use studless walls."

Three types of "thin-wall" panels which equalled or exceeded the performance of stud walls were developed. These survived impact and load tests to which more than 20 types of panels were subjected. The "thin-walls" are made of two pieces of wallboard, laminated.

The dimensions for the single closet, 4x2x8 feet, are based on the principle of modular design—that is, the dimensions are related to those of building material so that materials can be used with a minimum of cutting and fitting. The back walls, for example, can be built from whole 4x8 foot sheets of wallboard; the panels between double or triple closets from half sheets.



INSTALLATION OF LOW COST CLOSET WALL with framing details at head, floor and at shelf



DIVIDER PANEL for three compartment closet with details of corner connections



WHEN FINISH FLOORING 1/2 by 2-inch or 1/2 by 1 1/2-inch is used. 6d bright wire casing nails are best—one nail every 10 inches. Flooring 3s-inch thick takes 4d nails spaced 8 inches apart.

ALL types of flooring materials fall under one of three general categories: wood floors, resilient floors, or non-resilient floors. The majority of wood floors are made from woods botanically classed as hardwoods. Several excellent flooring woods fall into the classification of softwoods, but are from the harder species. For reference purposes, composition flooring materials are considered resilient flooring while those floors composed of concrete and stone products make up the non-resilient category.

Medium and light duty hardwood floors are used in business offices, hospitals, institutions and residences; structures where less rigorous wear is to be expected. Today there are three basic types of wood flooring: Strip, parquet or pattern, and plank. Reference is sometimes made to a type of block flooring. This is simply flooring blocks, pre-assembled at the factory, for parquet installation.

Five species of wood make up the vast majority of all types of floors; oak, maple, birch, beech and pecan. Other species used, which are limited because of economy and scarcity reasons, are hickory, teak, cherry, ash and walnut. The last mentioned species are also very durable and their grain patterns afford outstanding and distinctive floors. Generally, only wood flooring producers specializing in these distinctive species make an attempt to classify and grade their output.

#### Flooring Types

Strip flooring consists of pieces, available in varying thicknesses, cut in narrow strips and of uniform widths. Pieces are tongued and grooved at the factory.

Parquet or pattern flooring consists of equal short lengths, generally governed by multiples of the width, which is installed in geometric patterns such as herringbone, squares, and rectangles. A parquetry flooring is also available which consists of factory assembled blocks; sometimes referred to as block flooring.

Plank flooring consists of boards milled in random widths to produce the effect of early American heavy plank floors. Plank flooring is available with or without beveled edges; beveled edges being used when a more authentic early hand-hewn treatment is wanted. The Colonial wood peg fastening effect is simulated by wood plugs glued in holes on top of the counter sunk screws which fasten the planks.

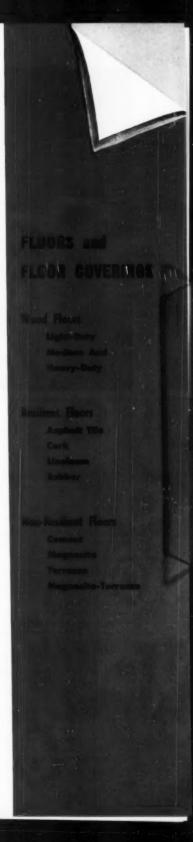
Standard size, count and weight charts are shown elsewhere on these pages.

#### Pre-Finished Hardwood Flooring

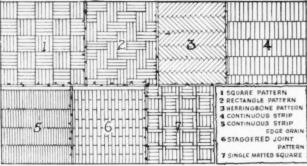
Some manufacturers produce flooring which is completely pre-finished at the factory, It is ready for use immediately after being laid. All species and types of hardwood flooring may not be readily available in this form; however, a producer equipped to make factory finished flooring can usually furnish it in any species and type he ordinarily produces unfinished.

#### Delivery and Storage Care

Factory kiln-dried hardwood flooring has a moisture content of five to







PATTERN FLOORING material is installed in herringbones, squares, rectangles

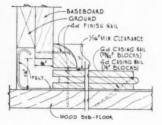
six per cent. Care must go into handling and storing of flooring to help maintain this low moisture content. It should not be unloaded, trucked or transferred in rain or snow and must be covered with tarpaulin if the atmosphere is foggy or damp. Storage areas in colder climates in cold weather should be heated and maintained at 10 degrees above the outside temperature. Good ventilation is a must. Storage floors should be 18 inches or more above the ground. Store flooring on the job only after plaster and cement work have thoroughly dried. During winter construction keep building heated to 70 degrees and leave flooring piled loosely four or five days before laying.

#### Subfloor Requirements

Hardwood strip flooring should be laid on a soundly constructed subfloor. Subfloor boards should be between six and eight inches wide. Face nail them solidly at every bearing point with two or three 10-penny nails. All butt joints should rest on bearings. Use adequate nailing to avoid squeaky floors. Subfloors laid diagonally afford additional bracing strength for the building. Bracing strength will be further improved if diagonal direction is reversed on alternate floors. Before laying finish flooring, be sure subflooring is dry and clean, with all bits of plaster or other dirt scraped off.



PARQUET FLOORING may be nailed to a wood subfloor or an old finish floor in the same manner as strip flooring. Proper construction of the subfloor is essential. Floor joists must be on 16-inch centers and covered solid with 25/22 by 4-inch or 6-inch subflooring thoroughly dried and nailed securely. The surface must be even-bearing



#### Strip Floor Application

When possible lay strip floors lengthwise of the building. When applying over old finish floors, apply at right angles with the old floors. Thresholds are omitted in the modern home. Flooring should run continuously through doorways. Care should be exercised to stagger end joints to avoid grouping them closely together.

#### On Joists and Concrete

If necessary for economy measures, strip flooring may be laid directly on joists. Such floor strips should be at least 25/32-inch thick. Joists should be spaced no wider than 16 inches on center.

Strip floors may be installed over basement or other concrete floors by laying the strips directly on wooden sleepers properly secured to the concrete. Conditions cited in the previous paragraph apply.

In cases where strip flooring is to be laid over concrete and heavy traffic is anticipated, a wooden subfloor often is recommended as a base. The subfloor should be nailed to wooden sleepers installed in the concrete. Spaced at no more than 16 inches, the sleepers should be securely attached to the concrete.

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#### THICKNESSES AND WIDTHS, NORTHERN HARD MAPLE, BEECH AND

Standar	d Thicks	nesses		Fac	e V	Videhs	
	7	ONGUE	AND GE	ROOV	ED		
25/32"	31	/32"	1.1/2"	2"		21/4"	31/4"
36"	1/2"	56"	1 1/2"	2"		2 1/4"	****
41/32"	53	/32"	****			2 1/4"	31/4"
		JOINT	ED FLOO	RING			
All T	hicknes	964		2 1/2"		3.5/	
Smar	ial Wide	he	214	,	3.3	Lec.	334"

#### USES OF DIFFERENT THICKNESSES

The <sup>21</sup>/<sub>2</sub>-inch thickness is the most commonly used for general purposes. The <sup>21</sup>/<sub>2</sub>-inch thickness is the most commonly used for general purposes. The <sup>21</sup>/<sub>2</sub>-inch and <sup>21</sup>/<sub>2</sub>-inch thicknesses, with their additional wearing surfaces and load-carrying ability, are recommended where floors are subjected to estraordinary strain and wear. The <sup>2</sup>/<sub>2</sub>-<sup>1</sup>/<sub>2</sub> and <sup>2</sup>/<sub>2</sub>-inch thicknesses are satisfactory for light service. A diversional even underthose is required. Jointed, also called Square-Gloge flooring, has the advantage of easy replacement in industrial floors.

NORTHERN HARD MAPLE FLOORING BLOCKS, TO BE LAID IN MASTIC OVER CONCRETE (OR WOOD) SUBFLOORS IN HERRINGBONE PATTERN, IN SQUARES, CONTINUOUS STRIP OR OTHER PATTERN

#### SINGLE PIECE BLOCKS

 $^{13}$ <sub>2a</sub> and  $^{13}$ <sub>3g</sub>-inch thicknesses in face widths of  $1 \, ^{14}$ <sub>5</sub>,  $2, 2 \, ^{14}$ <sub>5</sub> and  $3 \, ^{14}$ <sub>5</sub>, each and proportionate face length, as desired, from  $6 \, ^{14}$ <sub>5</sub> to  $15 \, ^{14}$ <sub>5</sub> inches. Also edge-grain stock in  $1 \, ^{14}$ <sub>5</sub> inch face width and in thicknesses from to  $2 \, ^{14}$ <sub>7</sub>-inch. Lengths principally 12 inches.

#### FABRICATED BLOCKS

Squares of <sup>18</sup>/<sub>3</sub>/rinch thickness (strips of 1 ½, 2 and 2 ½-inch face width), 6 ½ x 6 ½ inches to 11½ x 11½ inches Rectangles of <sup>18</sup>/<sub>3</sub>/xinch thickness, 6 x 12 inches (1 ½-inch or 2-inch strips), 6 ½ x 13½ inches (2½-inch strips), 6 ½ x 13½ inches (2½-inch strips), 6 ½ x 13½-inch strips, 6 ½ x 13½-inch strips, 6 ½-inch strips, 6 ½-inch

#### CONTINUOUS STRIP BLOCKS

Some of above sizes are also available in Beech and Birch. Write for list of manufacturers producing block and patterned flooring and information on installation procedure.

#### STANDARD SIZES, COUNTS and WEIGHTS

"Nominal" is the size designation used by the trade, but it is not always the actual size. Sometimes the actual thickness of hardwood flooring is 1/32-inch less than the so-called nomizal size. "Actual" is the mill size for thickness and face width, sectualing tongue width. "Gousted" size determines the board less in a shipment. Pieces less than 1 inch in thickness are considered to be 1 inch.

	OA	K	
Nominal	Actual	Counted	Weights M Ft.
TONGU	ED AND GRO	DVED-END MA	ATCHED
$^{25}/_{12} \times 3^{1}/_{4}$ in. $^{25}/_{12} \times 2^{1}/_{4}$ in. $^{25}/_{12} \times 2$ in. $^{25}/_{12} \times 1^{1}/_{2}$ in. $^{2}/_{9} \times 2$ in. $^{1}/_{2} \times 2$ in. $^{1}/_{2} \times 1^{1}/_{2}$ in.	$27/32 \times 31/4$ im. $27/32 \times 21/4$ in. $27/32 \times 2$ in. $27/32 \times 11/2$ in. $11/32 \times 2$ in. $11/32 \times 2$ in. $11/32 \times 2$ in. $11/32 \times 11/2$ in.	$1 \times 4$ im. $1 \times 3$ im. $1 \times 2^{3}/_{4}$ im. $1 \times 2^{3}/_{2}$ im. $1 \times 2^{3}/_{2}$ im. $1 \times 2$ im. $1 \times 2^{3}/_{2}$ im. $1 \times 2^{3}/_{2}$ im.	2250 lbs. 2000 lbs. 2000 lbs. 2000 lbs. 1000 lbs. 1000 lbs. 1300 lbs. 1300 lbs.
	SQUAR	EDGE	
1/10 x 2 in. 1/10 x 11/2 in.	1/10 x 2 in. 1/10 x 11/2 in.	face count	1200 lbs. 1200 lbs.
BEECH, B	IRCH, HARD	MAPLE AN	ND PECAN
Nominal	Actual	Counted	Weights M Ft
TONGL	ED AND GRO	OVED-END M	ATCHED
$^{25}/_{12} \times 3^{1}/_{4}$ in. $^{26}/_{12} \times 2^{1}/_{4}$ in. $^{25}/_{12} \times 2^{2}$ in. $^{26}/_{12} \times 1^{1}/_{1}$ in. $^{26}/_{12} \times 2^{2}$ in. $^{1}/_{2} \times 2^{2}$ in. $^{1}/_{2} \times 2^{2}$ in. $^{1}/_{2} \times 1^{1}/_{2}$ in.	22/12 × 31/4 in. 22/12 × 21/4 in. 22/12 × 21/2 in. 22/12 × 11/2 in. 22/12 × 11/2 in. 23/12 × 11/2 in. 24/12 × 11/2 in. 24/12 × 11/2 in.	1 x 4 in. 1 x 3 in. 1 x 2 <sup>3</sup> / <sub>4</sub> in. 1 x 2 <sup>1</sup> / <sub>4</sub> in. 1 x 2 <sup>1</sup> / <sub>2</sub> in. 1 x 2 in. 1 x 2 <sup>1</sup> / <sub>2</sub> in.	2250 lbs. 2000 lbs. 2000 lbs. 2000 lbs. 2000 lbs. 1000 lbs. 1300 lbs. 1300 lbs.
SPECIAL	THICKNESSES	(T and G, End	Matched)
17/10 x 3 /4 in. 17/10 x 21/4 in. 17/10 x 2 in.	$^{33}/_{12} \times 3^{1}/_{4}$ in. $^{23}/_{12} \times 2^{1}/_{4}$ in. $^{23}/_{12} \times 2$ in.	5/4 x 4 in. 5/4 x 3 in. 5/4 x 23/4 in.	2400 lbs. 2250 lbs. 2250 lbs.
JOIN	ED FLOORING	-i.e., SQUAR	E EDGE
23/22 x 21/2 in. 23/22 x 31/4 in. 11/25 x 21/3 in. 11/25 x 31/3 in.	$3/_{22} \times 21/_{2}$ in. $3/_{22} \times 31/_{4}$ in. $3/_{22} \times 21/_{2}$ in. $3/_{22} \times 31/_{2}$ in.	1 x 31/4 in. 1 x 4 in. 3/4 x 31/4 in. 3/4 x 41/4 in.	2250 lbs. 2400 lbs. 2500 lbs. 2600 lbs.

NOTE: Oak, Beech, Birch, Hard Maple and Pecan Flooring are bundled by averaging the lengths. A bundle may include pieces tom 6 in. under to 6 in. over the nominal length of the bundle. No piece shorter than 9 in. admitted. The percentages under 4 ft. referred to in the grading rules on this page apply on total footage in any one shipment of the item.

the lism.

\$\frac{3}{6}\times \text{in.}\$ allowance shall be added to the face length when measuring the length of each piece.

Flooring shall not be considered of standard grade unless the lumber from which the flooring is manufactured has been properly kill-dried.

#### Preventing Dampness

A good quality building paper, such as 15 pound asphalt saturated felt, should be laid between the subfloor and the finish floor. Besides resisting moisture, the building paper prevents dust from seeping through the floor seams. In basement installations the building paper should also be used. It is advisable to place double weight building paper or standard insulating board in rooms directly over heating plants. Apply either on the basement ceiling or between floor joists to provide protection against heat which might cause the floor to shrink excessively.

Ventilation should be provided beneath buildings without basements. Vents or openings in the foundation walls should be at least 11/2 per cent of the first floor area.

At least 1/2-inch expansion space should be allowed between flooring and framing.

#### Nails and Nailing

The use of proper nails (see Nail Schedule) and careful nailing holds

the flooring in place, makes the floor rigid, and prevents squeaks. Start the nails through the strip where the tongue leaves the shoulder and drive inwardly at an angle of 45 to 55 degrees to the floor. Countersink all nail heads by use of a steel set or use a nail for setting.

Do not try to hammer each piece of tongued and grooved strip flooring into its final position as soon as it is nailed. After laying three or four pieces, place a short piece of straightedge hardwood against the tongue of the outside piece and drive the pieces up snugly, taking care not to break the tongue. Repeat this after every three or four pieces have been laid.

#### Parquet Flooring

Parquet flooring, including prefabricated blocks, may be nailed over a wood subfloor or old finish floor, or may be laid in mastic over concrete. The subfloor should cross the joists at right angles rather than on a diagonal.

#### Parquetry Over Concrete

When parquetry is to be laid in

mastic directly over concrete, extreme care must be taken that the concrete surface is perfectly clean. dry and level. Brushing the surface with a hair broom is recommended for ridding the concrete of loose dirt. A heavy coat of asphalt primer should then be applied evenly, brushed in well, and allowed to dry for 24 hours before the mastic is applied and the finish floor laid. Mastic usually is spread to a minimum average thickness of 3/ag-inch.

When parquetry is to be laid over concrete directly on the ground or over unventilated spaces, and there is a consequent danger of floor dampness, the concrete floor should be waterproofed. This may be done by applying a coat of hot asphalt and covering it with asphalt rolled smoothly on each layer. If there is danger of water seepage, use five layers.

#### Finishing Suggestions

Unfinished hardwood flooring is smoothly surfaced at the factory.

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Laying oak over concrete adds beauty, durability and "healthfulness" to every home.



Builders who include all the basic fundamentals such as "healthfulness", durability, economy and beauty—in the low-cost homes they build will find them easier to sell. Cost cutting should be confined to "frills" and size.



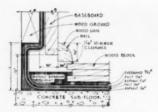
All the basic fundamentals are provided by oak flooring. And, with new methods of laying oak over concrete, low-cost homes need not forego the benefits of oak. Oak can now be nailed to screeds set in mastic\*. And, there are grades of oak priced for even the lowest-cost homes.



Housewives know that oak flooring will have that "justinstalled" look for a lifetime—with a minimum of care. That's one reason 85% of all prospective homeowners want oak in their next home. The clean, sanitary appearance of oak makes it the "healthiest" flooring on the market.

\*SEND TO NATIONAL DAK FLOORING MFRS. ASS'N., STERICK BLDG., MEMPHIS 3, TENN., FOR FREE, FNA-APPROVED INSTRUCTIONS FOR LAYING DAK OVER CONCRETE

APRIL 1952



IN LAYING PARQUET FLOORING in mastic over concrete, be sure the slab is perfectly level. Surface must be thoroughly dry and swept free of dust and trash. Mastic is usually spread to a minimum average thickness of 3/32-inch

Scratches and other slight marks caused by handling may be removed by sanding or scraping. An electrically operated sanding machine is used for this work. For fine floors most manufacturers advise at least four sandings, starting with No. 2 sandpaper and graduating down to No. ½. No. 0 and No. 00. A final buffing with No. 000 assures an even smoother surface. Authorities recommend that final traverse be made by hand.

#### Stain and Filler

Apply first coat of stain or other finish the same day as the last sanding. This is important. Otherwise the wood grain will have risen and the finish consequently will be slightly rough. Stain is not used if the natural color of the wood is desired for the final finish. When used it is applied first. It should be put on evenly with a 3- or 4-inch brush.

Paste wood filler is used to fill the minute surface crevices in oak and other hardwoods having large pores. Filler is applied after stains and sometimes after floor seals but always before other finishing materials. It should be allowed to dry 24 hours before the next operation is begun. Wood filler may be colorless or may contain pigment to bring out the grain of the wood.

#### Heavy Duty Wood Floors

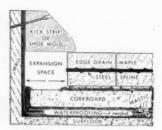
Floors laid in mills, factories, retail stores, gymnasiums, schools and other heavy traffic locations are heavy-duty floors. Such floors often call for the heavier grades of floor materials and are installed with more consideration given the floor base. Close attention is also paid to the expansion factor since such areas-are more often much larger per unit

Edge-grain Flooring is pretty well confined to the heavy-duty installation. Method of installation usually includes the use of mastic. Pieces approximately 12 inches in length are placed with what would normally be considered the edge of the board being used as the floor surface. Thicknesses run from 33/32 to 2½ inches while face surface is about ½ to 1¾ inches wide. Northern Rock Maple is usually used.

Corkboard may be used between the subfloor and the edge-grain flooring, particularly on such installations where resiliency is a factor, such as gym floors. An additional method of binding has been developed which involves the driving of lengths of saw-toothed, steel splines along the edge of the flooring as each section is laid.

End Grain Floors. Grooved or lug type, creosote treated, blocks made of vellow pine or oak and installed with the end grain as the floor surface, are widely used for heavy-duty factory floors. Blocks are creosote treated at the factory by pressure methods which leave about 6 pounds of creosote in each cubic foot of timber. Blocks are available with 2-, 21/2- or 3-inch depth, approximately 234 to 4-inches wide and may vary from four to 81/2 inches in length. It is recommended they be installed on a smooth, level, seasoned concrete base. After a priming oil coat has been applied and dried on the concrete, a coating of hot pitch is applied, not over 1/4-inch thick, and the blocks laid with the grain vertical. after this pitch coat has hardened. Joints should be broken by a lap of at least one inch. Whenever possible, blocks should be laid with their length at right angles to the prevailing line of heaviest traffic; across aisles, for example. Leave a bituminous expansion joint of at least one inch against walls and around columns and obstructions. A pitch filler compound is used for the final finish. Make sure all joints are filled within 1/4-inch of the surface.

Transverse Expansion Joints. Try



CORKBOARD may be used between the subfloor and edge-grain flooring. An additional method of binding involves driving lengths of saw-toothed steel splines along the edge of the flooring

to avoid transverse expansion joints in the concrete base. If they do exist, the joints must be far enough below the surface of the concrete to eliminate the possibility of expansion material being forced out and bulging the blocks above the floor surface during expansion of the concrete base floor.

Strip End Grain Floors. Flexible strip end grain blocks are installed in factories, gymnasiums, drill halls, schools and such heavy duty locations. Blocks of kiln-dried yellow pine are held together by wire trusses in strips from two to eight feet. Blocks are factory-impregnated with a colorless, odorless preservative which does not stain the wood. Strips of blocks are cemented to the concrete floor with bituminous cement applied at approximately 275° F. Cork board base may be preferred, depending on floor use. For factory floors, a seal coat is applied with a squeegee after floors have been laid. For installations necessitating a finer surface, floors are sanded and then a paste filler is squeegeed over the surface and rubbed in. Additional finish coats, depending upon surface desired, may then be added.

#### Other Heavy Duty Floors

Strip and parquet floors are also extensively used in both medium and heavy duty installations. The heavier weight sizes used are governed by the extent and type of traffic to which the floor will be subjected. Of primary concern, for heavy duty and medium duty installation, is the floor base. In the majority of cases a

(Continued on page 458)

	NAIL SCHEDULE—	Tongue-and-Gra	ove Flooring	Must Be Blind Nailed	
Flooring Dimen- sion, In.	Size of Nails	Spacing of Nails	Following floorin	g must always be laid on a sub-floo	r, blind nailed:
35x31/4	8d light flooring nail-wire nail		1/2×2 or 1/2×11/2	6d bright wire casing nails	10 in. apart
	or steel cut casing nail—(use cut nails when possible)	10 in. apart	36x2 or 36x11/2	4d bright wire casing nails	8 in. apart
31×21/4	Same nails as above	10 in. apart	Square-edge flo	ooring, as follows, face-nailed—thro	ugh top face
		To m. opan	%x2 or %x11/2	11/g-in. barbed wire flooring brad	2 nails every
31x11/2	Same nails as above	12 in. apart		No. 16 heads countersunk and puttied	7 in.

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- Resistance to acid, grease, and alkali make it ideal for such installations as laboratories, cafeterias, hospitals.
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- Recommended for installation ON, ABOVE, or BELOW GRADE.
- May be laid direct on concrete, terrazzo or ceramic.
- Can be installed on wood over 15-lb. saturated felt... over gypsum, plank or unfinished concrete slab with suitable underlayment... and over magnesite, above grade.
- LOW COST is comparable to grease-proof asphalt tile.

Now the problem of selecting the right flooring is simplified. New MATICO ARISTOFLEX does the jobs of many floorings . . . its modern, vinyl-asbestos qualities meet the requirements of practically all installations.

And the low price of standard-gauge ARISTOFLEX—comparable to that of grease-proof asphalt tile—meets thrifty budgets. Installation is easy and economical. No special cements are required, ordinary asphalt tile adhesive does the job. ARISTOFLEX lays in tightly, immediately, due to square corners and clean edges...cuts clean without use of a torch.

ARISTOFLEX is vinyl-asbestos from top to bottom—no felt backing. It resists household acids, alkalis, petroleum solvents, oils, greases, turpentine, and fire . . . is tough and flexible . . and has excellent indentation recovery. Vivid colors and marbleization go clear through each tile. As a result, ARISTOFLEX is one of the most durable of floorings. It wears for years and years . . and steadfastly maintains its sparkling beauty. The smooth surface sheds dirt . . . wipes clean with a damp mop. Maintenance costs are low. Available in 9" x 9" standard gauge and 1/8" tiles.

For vinyl-asbestos flooring quality with economy, look to ARISTOFLEX.

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#### **Grading of Hardwood Floors**

The principal American producers of hardwood strip flooring have, through two major trade associations, adopted uniform grading rules and regulations for commercial practice. Approved by the Bureau of Standards of the U.S. Department of Commerce, these rules and regulations are enforced rigidly, in part by the organizations themselves. As a result dealers and consumers are assured of high standard merchandise and the industry is protected against sharp practices. The two organizations are the National Oak Flooring Manufacturers' Association, with headquarters at Memphis, Tenn., and the Maple Flooring Manufacturers' Association, Oshkosh, Wis.

Every bundle of flooring produced by a member of either association is identified as to grade, and is guaranteed to meet all established specifications. Often the manufacturer's name and a mill mark of identification are stated on each bundle.

There are no official grading rules for plank, parquet and block flooring, but generally the different grades correspond to those of strip flooring.

Hardwood flooring grades are based principally on appearance. All regular grades possess adequate strength, durability and resistance to wear, hence these qualities are not factors. Chiefly considered are such imperfections as knots, streaks, pin worm holes and in some cases sapwood and variations in color. Imperfections in processing also are factors.

OAK — In Clear Grade Oak the amount of sapwood is limited. Otherwise, variations in color are disregarded in grading. Red and White Oak ordinarily are separated, but that does not affect their grading. In most cases the average length of strip flooring pieces is greater in the higher grades. Oak is classified into three grades of quarter-sawed stock and four of plain-sawed. In descending order the quarter-sawed grades are: Clear, Sap Clear and Select. Plain-sawed grades are: Clear, Select. No. 1 Common and No. 2 Common. (See Table below).

MAPLE, BEECH, BIRCH—Rules governing the grading of Maple, Beech and Birch are virtually identical for all three species. Neither sapwood nor varying natural color is considered a defect in standard grades. These species are produced in three standard grades—First. Second and Third, with First being the highest. Each also is available in a special grade selected for uniformity of color.

PECAN — Pecan is processed in seven standard grades, two of which specify all heartwood, and one bright sapwood. Otherwise color variation is not considered.

#### STANDARD OAK FLOORING GRADES

#### **Quarter Sawed**

Clear — The face shall be practically free of defects except 3% of an inch of bright sap. The question of color shall not be considered.

Bundles to be 2 ft, and up, not to exceed 25% under 4 ft. Average length 4½ ft.

Sap Clear — The face shall be practically free from defects but will admit unlimited bright sap. The question of color shall not be considered.

Bundles to be 2 it, and up, not to exceed 25% under 4 it. Average length 4½ it.

**Select** — The face may contain sap, and will admit pin worm holes, streaks, slight imperfections in working or small, tight knots, not to exceed one to every 3 ft, in learth

Bundles to be 2 ft. and up. Average length 4 ft.

#### **Plain Sawed**

Clear — The face shall be practically free of defects except 16 of an inch of bright sap. The question of color shall not be considered. Bundles to be 2 ft. and up, not to exceed 25% under 4 ft. Average length 4½ ft.

**Select** — The face may contain sap, and will admit pin worm holes, streaks, slight imperfections in working or small, tight knots, not to exceed one to every 3 ft. in length,

Bundles to be 2 ft. and up. Average length 4 ft.

No. 1 Common — Shall be of such nature as will make and lay a sound flooring without cutting.

Bundles to be 2 ft. and up. Average length 3 ft.

No. 2 Common — May contain defects of all characters, but will lay a serviceable floor.

Bundles to be 11/4 ft. and up. Average length 21/2 ft.

Square-edge strip flooring is graded as above, but the Clear is bundled 2 ft. and up. average length 5½ ft.; Select bundled 2 ft. and up. average length 4½ ft.; Common bundled 2 ft. and up. average length 3½ ft.

#### BEECH, BIRCH AND HARD MAPLE

First Grade — Shall have the face practically free of all defects, but the varying natural color of the wood shall not be considered a defect. Bundles shall be 2 to 16 ft., as the stock will produce; the proportion of 2 and 3 ft. bundles shall be what the stock will produce up to 25%.

**Second Grade** — Will admit of tight, sound knots and slight imperfections in dressing, but must lay without waste. Bundles shall be 114 to 16 ft., as the stock will produce; the proportions of 114 to 3 ft, bundles, shall be what the stock will produce up to 40%.

Third Grade — Must be of such character as will lay and give a good serviceable floor, Bundles shall be 114

to 16 ft., as the stock will produce; the proportion of  $1\frac{1}{4}$  to 3 ft. bundles shall be what the stock will produce up to 60%.

Special Grades — First Grade White NOFMA Hard Maple is special stock, selected for uniformity of color. It is almost ivory white and is the finest grade of NOFMA Hard Maple Flooring produced.

First Grade Red NOFMA Beech and NOFMA Birch are special grades produced from all rediaced stock and are specially selected for color. The color is rich, being a soft tint which lends distinctiveness to these two woods.



Coronet
PLASTIC WALL TILE

America's most beautiful walls are an inexpensive luxury with

CÓRONET Plastic
Wall Tile. Bevel edged for body and accurately
sized for perfect installation, it is durable, sturdy
and easy to wash down. Available in sixteen
soft colors and bright decorator-approved pastels in plain or marble-tones. Coronet Plastic
Wall Tile is resistant to common household
acids and greases. It is customer-tested as the
most profitable plastic wall tile you can sell.



HAKO Asphalt Tile Flooring is a doubleprofit companion for CORONET Plastic

Wall Tile. Each precision-cut square has the selfdecorating features of style, design and lasting beauty. Its wide variety of rich warm solid or marbleized tones will delight any customer. Factory waxed and conditioned for heavy wear, it resists stains and indentations. A HAKO Asphalt Tile Flooring customer is a happy and satisfied one.



#### **PARQUETRY**

Recommend PARQUETRY where hardwood effect is desired! Adaptable to any architectural plan, its true Natural Oak appearance enhances the beauty of modern or period furniture. Recommend PARQUETRY — for any room.





HACHMEISTER-INC. Dept. AB6. 2332 Fortes Street Pittsburgh 13, Pa.

Gentlemen:

Please send more information on how 1 can double my profits with HAKO Coronet Plastic Wall Tile and HAKO Asphalt Tile Flooring.

Name of Company:

Address

City Zone State

Signature or Title: By

Hachmeister Products of Merit

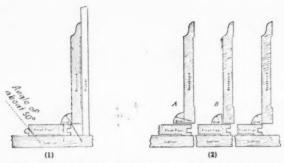


FIGURE 1 shows laying the first strip of finish flooring. The finish moulding usually is not put in place until all the flooring pieces have been installed. It is shown here to indicate its position in relation to the first piece of flooring, FIGURE 2 shows three methods of placing the first strip of finish flooring and natling the shoe moulding: (A) Shoe moulding natiled to base-board: (B) shoe moulding natiled to inflate of the flooring and nation and in finish floor. (C) shoe moulding analled to subfloor. The latter method is generally recommended. The danger in (A) is that a crack might develop between the shoe moulding and the finish floor. In (B) a crack may occur between the shoe moulding and the base-board. Method (C) virtually eliminates these dangers

(Continued from page 454) mastic cushion is preferred.

Resilient Floors. The major types of resilient floors are asphalt tile, cork, linoleum, rubber, and felt base with baked enamel surface. The use of a felt underlayment between the subtloor and resilient floor material is optional if the subfloor is of plywood or hardboard. In every other case, however, a felt underlayment is recommended if the long life and full benefit is to be expected of the resilient flooring. Subflooring must always be reasonably smooth and solid.

Resilient flooring should never be installed on wet or damp subfloors or on wood floors in contact with the ground. For full satisfaction it is recommended that at least 18 mehes of air space and free circulation exist between subfloor and earth. Asphalt tile may be installed on concrete which is in contact with the ground if the concrete is fully treated with sealer. In every case, a dry condition must exist on the surface receiving the resilient flooring and underlayment.

Handling Resilient Flooring. A 70-degree room temperature is required for storing, handling and installing resilient type of flooring. Adhesives are customarily of combustible nature and should not be stored near or exposed to open flames or steam coils. Keep adhesive containers tightly sealed when not in use, If any trades are still working in the building after resilient flooring has been installed, cover flooring with builders left to fully protect from possible surface damage.

Underlayment, The use of felt underlayment under resilient flooring

serves three purposes: Takes up slight irregularities, permits shearing action between subfloor and floor covering, and lends added resiliency to the entire surface. An excellent type felt underlayment is semisaturated, weighing about one pound per square vard. Felt should be laid at right angles to floor boards, All seams should be butted and bonded to the floor by the application of felt adhesive compound. Cut felt and fit on the entire floor before starting to paste down. After first strip has been bonded to the floor, roll with floor roller, always starting from the

center of each strip of felt and working toward the ends. Roll well to remove all air bubbles and assure a good bond. Some linoleum flooring is produced with a felt back and no felt underlayment is necessary.

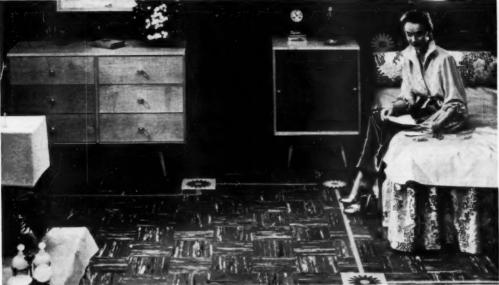
Flooring in Rolls. Cut resilient flooring to fit accurately at all points with a minimum of cross seams. A thin, even coat of paste is spread on the floor and the covering is pressed into place. Then roll well with a roller to remove air pockets and insure adhesion. Except for pattern goods, all resilient flooring should be overlapped slightly at the seams and cut through both thicknesses to insure a tight finished seam joint. Pattern goods must be carefully butted without further cutting to retain symmetry of design.

Tile Flooring. Determine the exact center of the area to be covered with tile flooring. Do this as shown in diagram shown elsewhere in these pages. Starting at the center line. spread adhesive in a thin even coat with a notched trowel. Cover enough area for several tiles and apply at once. Start laying tiles from the center point and work toward the walls so that last tile is set on perimeter or border of the room. Cut and fit tiles carefully around all projections and fixtures. When laying tiles, butt firmly against each other but do not slide into position as this may force adhesive up between the seam joints. Borders should follow the line of permanent fixtures and border



LAYING LINOLEUM ON A PLYWOOD SUBFLOOR. The plywood subfloor saves time and labor in this operation, since each panel covers 32 square feet. Large size means minimum linear footage of joints, producing superior base for wood finish flooring as well as for tile or linoleum





Long-lasting Kentile adds colorful beauty to any room . . . offers low-cost sales appeal by giving prospects a quality brand they know and trust

#### Lower building costs and raise quality with Kentile Floors

PROGRESSIVE BUILDERS and architects know that a house has to be built to sell...and they know that the nationally-advertised quality of Kentile provides them with a plus feature that home buyers recognize and appreciate . . . a brand name that stands for low-cost quality and industry leadership.

Kentile can be speedily and economically installed any place ... over any smooth, firm, interior surface ... even below grade over concrete in direct contact with the earth. And, once in place, Kentile's wide range of modern decorator colors bring beauty for years and years...because the colors go all the way through the tough tiles and can't wear off.

Yes, the obvious advantages of Kentile's low cost and long life have made it first choice with the designer, builders and buyers of small homes . . . Everyone who demands a quality product to design, install, sell or live with.



The Asphalt Tile of Enduring Beauty



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SAFETY-CUTS used to prevent damage when laying linoleum. (A) Corner safetycut is used to relieve strain on material. This allows the goods to be shoved closely into a corner and also flash slightly up both walls so that knifing the linoleum to the wall is easy. (B) This sidewall safety-cut relieves buckling. The cut is never made deeper than the width of the trim to be removed when the material is cut to fit the wall. (C) An outside corner safety-cut allows for fitting around projections. This cut frees one section of the goods so that it falls to the floor. The other section can be trimmed off at the floor line of the projection

width can be varied to accommodate any dimensional variations.

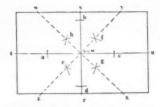
Linoleum tile should be thoroughly rolled and adhesive stains removed with a dampened cloth, Asphalt tile need not be rolled. Ordinary traffic, immediately after laying, is not objectional. Such nominal pressure will aid the honding action. Asphalt tile should be heated before cutting for fitting around fixtures. Remove excess adhesive immediately by using light steel wool and warm soap suds.

Regular or cove base or moulding, can be installed after entire application of resilient flooring is finished. Mouldings are available of wood, metal or resilient composition. Such resilient cove bases may be used in colors to match the flooring or lend attractive color complement.

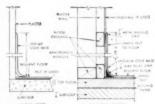
#### Non-Resilient Floors

Installation of non-resilient floors is handled nearly exclusively by installation contractors specializing in such types. Concrete falls in the non-resilient classification and consists of portland cement, sand, gravel and water, in varying amounts upon which, in great measure, the smoothness of the finished floor depends. Skillful troweling combined with use of final sealing compounds result in a smooth surface of durable hardness. Such floors must be applied over a strong, rigid subfloor.

To create a terrazzo floor, marble chips are added to a matrix of port-land cement. When the floor has thoroughly hardened, the entire floor is honed to a smooth, almost glass-like surface by use of a wet grinding machine. Metal dividers are used to sectionalize the floor. Pre-formed metal designs and pictures are often used to place trade-marks, names and decorative treatment to the floor.



THIS DIAGRAM shows the steps taken to determine direction for diagonal installation of tile. (1) With point M as center and using any convenient radius, mark A.B.C. and D on lines SR and TU. (2) With B and C as centers and using a radius greater than the distance between points C and M mark intersecting arcs at E. (3) With A and D as centers, mark intersecting arcs at F. (4) Strike a chalk line using points E and F through M to establish points Y and Z. (5) Use centers A and B to find point G. (6) Use centers C and D to find point H. (7) Strike chalk line using points G and H through M to establish points W and X

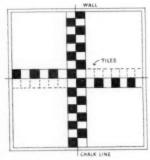


COVE BASE .

- FLASH TYPE COVE BASE

REGULAR OR COVE BASE OR MOULD-ING can be installed after application of a resilient flooring has been completed

Oxychloride cement, magnesium oxychloride cement or magnesite floors are the same. Oxychloride cement hardens to form a dense, stone-like material of fine, smooth texture. It is made up of both organic and inert materials which gives it a resiliency not found in other floors falling in the non-resilient classification.



PATTERN FOR LAYING TILE FLOORING.

Determine the exact center of the area
and proceed as indicated, working
toward the walls

#### You can

#### NOW

lay resilient or wood flooring directly on ongrade concrete slabs.



**STAFCO** 

does the job!

Gunnison Homes specify and use "Stafeo" ON-GRADE Sealer to seal the concrete slab before the finished Parkay floor is installed.

STAFCO makes possible the installation of linoleum, rubber tile, carpet, wood, or similar type of flooring on concrete which is in contact with the ground. Stafco is easily applied and forms a membrane through which capillary moisture or alkali cannot penetrate.

Write today for complete installation details

#### STANDARD FLOOR CO.

Dept. A, 141 Gulf Bldg.

Pittsburgh 19, Pa.

While portland cement floors need be applied in thicknesses of two inches and more on a rigid, sound base, oxychloride cement can be installed over most any type of structurally sound subfloor in a ½-to 3½-inch thickness. Over wood floors, a felt underlayment is first applied, then a welded mesh or "chicken wire," and then the magnesite floor applied. Magnesite also has the advantage of being available in almost any color. A magnesite floor is troweled to a fine finish. Marble chips may be added to form a magnesite-terrazo floor. Such terrazzo floors are honed with a wet grinder after cement has set hard for the final finish. Unique and attractive effects can be secured by combining a colored magnesite with selected marble chip colors and/or cork chips.

Clay tile, marble and slate floors are installed by the mortar embedded method. Details of installation are extensive in each case and such work is necessarily performed by specialists in each field. Clay tile and marble are fabricated to accurate size specifications while slate of a specified 1-inch thickness would vary from 1% to 11%

inch thickness.

Clay tile sizes range from small dots 11/32-inch square to nine inches square. Thicknesses vary from ½- to 1½inch. The most common sizes bear a geometric relationship to a 6-inch square. A wide variety of trim shapes are available for finishing.

#### How to Estimate the Amount of Hardwood Flooring Required for a Given Space

#### Strip Flooring

To determine the board feet of flooring needed to cover a given space, first find the area in square feet, then add to it the percentage of that figure which applies to the size flooring to be used, as indicated below:

50% for .											á			.25	32"x11/2"
371/2% for		ě.			į	ė.	4				ż	ú		.25	32"x2"
331/3% for		*				,	(6)							.25	32"x214"
24% for .		×					ú		×					.25	32"x314"
331/3% for											*		×		3%"x11/2"
25% for .															
3314 % for	×	e		*	*	,	ì				×				1/2" x11/2"
25% for							+				8	4	×		1/2"x2"

The above figures are based on laying flooring straight across the room. Where there are bay windows or other projections, allowance should be made for additional flooring. It is always well to order 5% additional flooring to take care of floor layers' cutting and possible damage.

#### **Block and Plank Flooring**

These are sold on the basis of floor coverage. It is necessary to provide only an additional 5% to floor area to compensate for floor layers' waste and possible damage.

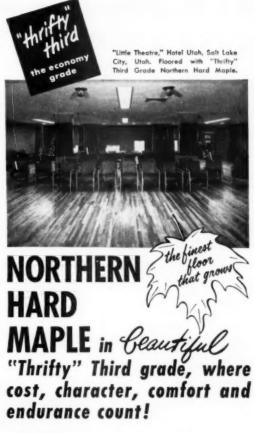
#### **Rules Governing Re-Inspection**

In the manufacture and grading of oak flooring the very best types of machinery, equipment and workmen are employed, but occasionally some pieces get into wrong grades by error.

Therefore, if the re-inspection results in a difference in favor of the purchaser of more than five (5) per cent in feet, as shown in the invoice, then the shipper will be considered as being in the wrong and shall issue a corrected invoice in accordance with the re-inspection, and pay all the expenses of the re-inspection.

If on the other hand, the difference is only five (5) per cent or less in feet, then the party making the complaint shall not be entitled to any reduction from the invoice and shall furthermore, be charged with all the expenses of the re-inspection.

The quality and condition of the oak flooring when it leaves the manufacturer is held to govern the re-inspection.



For so many good reasons, MFMA Northern Hard Maple Flooring, in "Thrifty" Third grade, is the right floor-the smart floor-to recommend and push these days! In defense housing projects, motels and residences, in modernization work, where costs must be held down, show them that it takes just as much labor to lay poor flooring as good flooring. Show them how much a well-laid maple floor adds to the building's strength-how much longer life Northern Hard Maple will give them-how much easier maintenance-and how much better it will look. Then the money-saving price you can quote on a floor of "Thrifty" Third means a lot to anyone who cares what kind of floor he's getting for his money. Want some MFMA leaflets on "Thrifty" Third to enclose with your mail? Write -

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Its extra-easy methods are professionally accurate presented by the author of such top-notch building books as "Small House Carpentry," "Interior and Exterior Fin-ish," and "The Masonry House"—checked and approved by leading manufacturers, builders associations and government agencies. Designed originally with the amateur craftsman in mind, this remark-able guide is at its most effective best in the hands of a professional builder like yourself.

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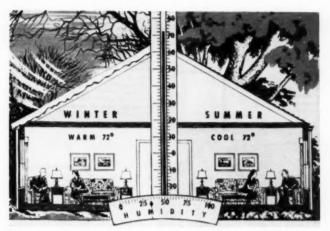
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.................

462



NOWLEDGE of the fundamentals of how insulation works is essential to any intelligent discussions of the subject with the public, It is also essential to any understanding of the correct choice of the type of insulation to be used, how much to use and its proper installation. The primary purpose of insulation is to retard the passage of heat, either from the inside out or from the outside into a structure.

Heat is a form of energy. It always travels from a warm surface to a cooler one. Heat travels in three

 By. conduction. Heat passing through solid materials, as through steel or dense concrete, travels by conduction. Dense materials conduct heat more rapidly than materials in which particles are separated by tiny air cells.

2. By convection. When heat travels via currents of air, it travels by convection. Air on contact with the cold side of a wall or a cold window tends to settle as it cools. Air in contact with a warm wall or unit rises. These reactions of air to cold and warm walls and objects set up a continuous circulation which moves heat across air spaces.

3. By radiation. Radiated heat

moves at high speed through air without heating the air and flows in direct lines from a warm surface to a cooler surface. Sun heat is radiated heat. Heat moving from a human body to a nearby colder surface, such as a wall or ceiling, is radiated heat, Radiated heat is absorbed by the object or wall which it reaches in proportion to that object's affinity to absorb heat.

All building materials such as wood, masonry, and even wide air spaces permit the passage of heat from the interior to the exterior in winter or from the exterior to the interior in summer. This rule also applies to insulation. Insulation never completely stops the passage of heat, but it is manufactured for the express purpose of retarding the greatest possible amount in areas insulated.

Insulation's function then is simple—to keep walls, ceilings and floors resistant to the escape of heat from indoors and to keep the indoor surfaces of rooms at a temperature close to the temperature of the air in the rooms. In summer outdoor heat is held within the walls, maintaining lower interior surface temperatures than would be possible without insulation.

#### ABBREVIATIONS AND TERMS

B.T.U.—British Thermal Unit. The amount of heat required to raise the temperature of one pound of water one degree Fahrenheit.

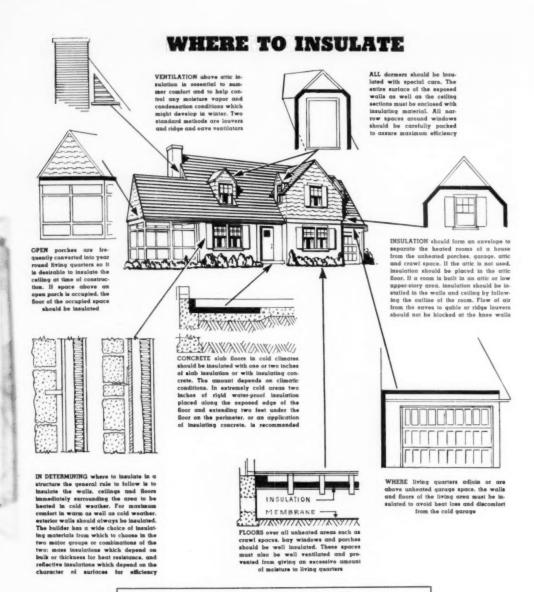
pound of werer one agree rantement.

"""—This represents conductivity. It is used
to show the amount of heat (8.7.U, 1) which
will pass through one square feel of a
specified meterial one inch thick for a
temperature differential of one degree F
between the two surfaces per hour.

"C"—Used to designate conductance of a material or combination of materials to show the amount of heat (8.1 M² a) that will peas through for the thickness or type under consideration per hour, per sequer to lead, per degree # temperature difference between the two surfaces. The "C" value of an 8-inch hellow concrete block is 1.00.

"U"-Designates the total or over-all trans-

mission of hoat (B.T.U.'s) from air on one side to air on the other side of a wall, roof, ceiling or flear per hour, per square foot, per degree temperature difference between the oir on the two sides of the section of the section



#### WHERE HEAT IS LOST OR GAINED IN A BUILDING

Studies of typical buildings as to relative heat loss and gain through various parts or sections are given below. These values are not for the same structure and are typical enough to be indicative of heat transmissions:

Heat Loss in Winter		Heat	Gain i	n Summer	
Walls	2.9% Walls				33.6%
Ceilings and roof 2					24.2%
Floors					
Glass and doors 2		nd door	s		26.4%
Infiltration					
_	0.0%				100.0%

The above figures were assembled from studies of typical two-story houses. The percentages would vary somewhat on one-story houses because the ceiling area would be proportionately greater and the wall area less.

#### INSTALLATION TIPS

The efficiency and economy of any installation can be largely nullified if the products are not properly applied. Insulation products must be used in places and conditions for which they were intended. If special problems or unusual conditions develop, manufacturers are always ready to lend assistance to assure maximum satisfaction from the product.

Insulated walls should be so constructed to avoid high heat conductance through the insulation. Fill materials must be insulated so that they will not settle and leave vacant spaces in the insulated areas.

#### INSULATION VALUE

When air spaces within walls constitute a part of the insulating value, the material must be installed so that the air spaces are sealed and prevent interchange of air between warm and cold air areas. If reflective insulating materials are used they must be so installed that the reflective surface will be protected from any foreign materials which would increase the emissivity coefficients and should not be laid in contact with other materials.

The insulating value of many materials is affected by moisture. It is now common practice to protect these materials by applying some moisture-resistant membrane as near as possible to the warm surface of walls where moisture-producing conditions exist.

Install materials in such a manner as to avoid air circulation between hot and cold spaces. For instance, a wood frame wall of standard type, with a 1/2-inch blanket insulation well installed in the central vertical plane of the stud section, gave a test coefficient of .12, This same wall, with 1/2-inch cut off, from the top and bottom of the blanket, so as to allow air circulation between the two air spaces, gave a test coefficient of .18. Similar reduction in the insulating value of a reflective material may be expected if it is not properly sealed to prevent air circulation between the hot and cold air spaces.

A similar condition may exist in masonry walls with vertical air spaces, when the mortar between the joints is buttered only around the edges, as is common practice. The webs, or partitions, between the air spaces are not sealed in the central part of the block, and there is direct communication between the air spaces on the cold and warm side of the wall.

Permanent ventilation in attics above insulation is essential to good performance. In summer it permits the escape of sun heat and in winter

it carries off vapor that passes from the house into the attic. Any arrangement that permits free circulation between the insulation and roof is suitable. Two standard methods are louvres, and ridge and cave ventilators. Louvres should be placed as high as possible at the peak of the gables. Ridge and eave ventilators must be constructed to allow circulation in at the eaves and out at the ridge. If knee walls are constructed, they must not block this circulation. To insure adequate ventilation, there should be at least one-quarter square inch of free opening in each of two permanently open vents for each square foot of insulated attic area.

#### LOOSE FILL

Various types may be packed, poured or blown into the spaces formed by framing members or masonry. Normally, they are used for insulating existing buildings.

Mineral Wool includes three types of noncombustible insulation known as rock wool, slag wool or glass wool. They may be fabricated into nodules, into batts or blankets. Mineral-wool filled partitions have been accorded a one-hour fire rating when faced with wood lath, or equivalent, and plaster. When faced with metal lath and plaster the fire rating is 1½ hours.

Wood fiber wool fill includes several insulations made from wood fiber to produce a lightweight fleecy material. These are generally treated to render them flame resistant, vernin repellent and moisture resistant.

Vermiculite is an inert. lightweight, granular insulating material manufactured by exploding an aluminum magnesium silicate mineral, which is a form of mica.

The final product is graded into different sizes for various uses, including building insulation, light weight insulating concrete aggregate and aggregate for insulating plaster.

#### Application

Loose fill insulation of the granular or fibrous types may be poured from bags into the spaces between the ceiling joists to the desired depth, usually four inches. It may be poured in place as soon as the plaster base or interior finish is applied, except where open lath are used. In these cases, it is necessary to wait until the plaster has been applied and has thoroughly dried. This is true whether the insulation is used in sidewalls or ceilings. If a vapor barrier is to be installed in the ceiling it should be put in place on the under side of the joists before the interior finish is applied.



BLANKET INSULATION wrapped in paper with vapor barrier on side



WOOD FIBER BLANKET with nailing flanges which fasten to framing members



LOOSE FILL insulation being blown in



GRANULAR FILL insulation being poured



(3) Multiple layers of treated wood fibers stitched to heavy creped paper with a reflective aluminum foil cover on one side



(4) Cotton Blanket lined on one side



(5) Wool bats with vapor barrier and nailing flange

When granular or fiber insulation is applied to existing structures in the side walls, a plumb bob should be dropped into each stud space to check for fire stops or headers which might obstruct the insulation flow. When vermiculite fill insulation is installed in sidewalls of existing structures it is well to vibrate the walls slightly with a rubber mallet or short 2 x 4 as the insulation is

poured to insure a complete fill below plaster clinches and around other obstructions such as conduit or pipes.

Double (cavity) masonry walls can be satisfactorily insulated with fill insulations. Variation in materials used and in construction methods make it advisable to follow the manufacturer's recommendations closely when this is done. Concrete block walls are sometimes insulated during construction by filling cores of blocks with insulation. Because of the conductance through the solid portion of the block, such a wall does not provide as much insulation as the insulated double or cavity wall but it does provide more insulation than the wall would with the cores left open. Extreme care must be taken under these conditions to make sure insulation will always remain dry.

In insulating existing structures with fill insulation, either poured or blown in the use of a vapor barrier is not mandatory, but it is good insurance against condensation troubles as a result of housekeeping methods which produce high humidities.

#### BLANKETS

Blanket insulations are flexible units more than 48 inches in length and wide enough to fit between studs on conventional 16 or 24-inch centers. This material is manufactured to control thicknesses and either folded in cartons or packed in rolls. It is made of mineral wool, wood fiber, cotton and animal hair. The fibers are either naturally fire resistant, moisture and vermin resistant or are treated to make them so.

Because of the variety of material used for blanket insulations, the manufacturing processes vary a great deal. The felted or wool-like mattings, however, are of three general types: 1-Those having the fibers completely encased on all sides with kraft or other paper, one side of which is a vapor barrier; 2-Those which have a vapor barrier on one side only and are not completely encased: 3-Those which have no paper covering. These depend on the interlaced fibers for sufficient strength, with or without stitching, to hold the material into a compact matting or blanket.

Blankets in the first two classifications are usually provided with a nailing flange to conform to standard spacings in wood framing. Those in the second classification are usually made sufficiently wider than the standard framing spaces to permit edge fastening through the material.

Blanket insulations are generally produced in one, two, three and 35% inch thicknesses. The thicknesses in



(8) Insulating Board sheathing



(9) Decorative insulating board as an interior finish



(10) Reflective insulation

inches are not always specified, but are assigned various names by competing manufacturers, such as fullthick, double thick, standard, commercial and similar designations. Generally speaking, their efficiency depends on their thickness.

#### Application

The two popular and efficient methods of applying blanket insulation in frame construction are: I—Between the framing members held in place by friction; 2—Between

(Continued on page 468)

#### another HOMASOTE FIRST - designed to reduce the cost of building



... use a material that's strong and crackproof—that's completely weatherproof, light in weight and easily worked...a material that's made in Big Sheets—up to 8' x 14'—in sizes two men can handle easily and at considerable savings in labor and materials.

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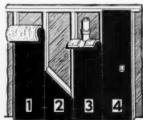
Send literature on Homasote Insulating-Building Board.

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SI.ANKETS are cut in continuous strips to required length for each stud space. In installing batts or blankets, large pipes in walls may require removal of part of the wool, but the vapor barrier is always retained. To protect water pipes from freezing, insulation should be on the cold side whenever possible and none on the warm side, but keep vapor barrier intact. Vapor barrier must fit snugly around outlets

(Continued from page 466)

the framing members with nailing flanges or edges of the paper or vapor barrier backing nailed to the inside edges of the studs or other framing members. When blanket insulation which is thinner than the depth of the framing members is applied entirely between the framing members, it should be installed so that two air spaces are formed. The blankets should always be cut slightly longer than the opening to be filled and the ends secured to the plates in the same manner that the edges are fastened.

One type of blanket insulation is installed between studs by first securing the upper end with a lath strip, stretching the blanket to the desired length and attaching the other end to the sill in the same manner. After this is done the edges of the blanket are fastened along the sides of the studs by stapling at regular intervals of about 18 inches.

There are a number of thin flexible insulations that can be applied directly to the studs, either on the inside or outside edges, and the interior or exterior finish applied directly.

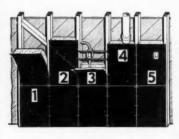
Blanket insulations may be applied to masonry walls if the furring strips are thick enough to prevent close contact of the insulation with any rain borne moisture which might be conducted through to the inside of the masonry.

Wherever insulating blankets or batts are used with new masonry, an effective vapor barrier should be installed on the warm side of the insulation.

Some compressible types of blanket insulations can be run over the furring strips and compressed over them by the lath or other interior finish which is applied. This method is common with builders who pre-fabricate houses or wall panels.



BATTS OR BLANKETS should always be worked carefully around pipes and conduits. Water pipes should be protected from freezing with insulation on the cold side but the vapor barrier retained on the warm side.

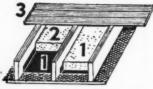


IN INSTALLING batts start at the bottom of the stud space and completely insulate by anually butting successive batts together. Where there is a flange on the vapor barrier, it should be stapled to the studs. At sills, plates and in odd-shaped places, the vapor barrier is cut a little larger than the opening, the insulation tucked back and the barrier stapled to members. Same rule applies to blankels



IN FLOORS over crawl spaces batts can be installed in several ways. A suitable supporting material, vapor permeable, is first installed, shown as (1) in the drawing. Each joist space is completely insulated with all batts butted saugly together. worked around bridging and fitted snugly at ends of joist runs. Vapor barriers are always up. next to the floor. Flanges are stapled in positions shown in the three drawings, depending on which method is adopted. If flooring is already installed. the insulation can be applied from below with the vapor barrier up, and supported with a suitable vapor permeable material attached to the bottoms of the joists. When insulation is installed in a floor over a cold area or crawl space, good vapor barriers plus adequate ventilation will add to the efficiency of insulation and comfort





INSTALLATION of botts or blonkets in top floor ceilings or attic floors over heated spaces with the room ceiling finish in place is a simple operation. Working from above the joists, the insulation is laid between them with the vapor barrier down, against the warm ceiling. Batts should be fitted closely together and worked carefully around all bridging. pipes, conduits, etc., which may be in the joist spaces. Blankets should be cut to the required length with allowance for attachment of vapor barrier at the ends. When working from below with an attic floor in place or under sloping roofs, the same basic principles apply, with the vapor barrier always on the warm side

#### BATTS

A number of manufacturers who produce blanket insulations also make batts, using the same raw materials. Batts are 48 inches or less in length and the same widths as the blankets-15 inches to fit between studs 16 inches on center and 23 inches for the 24-inch O. C. studs. The most common thickness for batts is three inches, although they are also produced in one and two-inch thicknesses. They may be obtained with the insulation completely encased in paper, one side of which is a vapor barrier; with the vapor barrier only on the one side; or without the integral vapor barrier. Some manufacturers provide a nailing flange as part of the vapor barrier.

#### Application

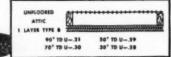
Work should always be started at the bottom with batts, and each stud space completely filled by snugly butting each batt against the other. Where there are pipes, conduits or other obstructions to work around, (Continued on page 470) Insulating efficiency without bulk



# REYNOLDS ALUMINUM REFLECTIVE INSULATION

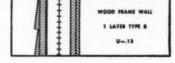
TYPE B — Embossed aluminum foil on both sides of kraft paper.

TYPE C - Embossed aluminum foil on one side of kraft paper.



Quickest to apply, easiest to handle! You cover 250 square feet with one 15-lb. roll... just staple the bright sheets in place. Reflects up to 95% of radiant heat from whatever direction it comes... from the sun in summer, from stove or furnace in winter. And it's the perfect vapor barrier, too. All this, at half the cost of most bulk insulations! Write for information. Reynolds Metals Company, Building Products Division, 2003 South Ninth Street, Louisville 1, Kentucky.

in rolls of 250 sq. ft. — 25", 33" and 36" wide.



POUBLE PLOCE TYPE S U - .09









Military needs for aluminum limit supply, but Reynolds is rapidly expanding primary capacity. Check your supplier.



REYNOLDS ALUMINUM

APRIL 1952

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(Continued from page 468)

the wool should be split and part of the material placed behind the obstructions if there is room, To protect water pipes in outside walls from freezing in cold climates, it is advisable to place insulation on the cold side only.

Where batts do not have an integral vapor barrier, it is recommended that a vapor barrier be applied on the warm side of the wall as soon as the batts are in place.

#### INSULATING BOARD

Common insulating board products used in light construction are known as building board, sheathing, lath, tile board, plank and roof insulation.

Building board is a product for general usage produced in four-foot widths and in lengths from six to 12 feet. Popular thickness is 1/2-inch, although it is available in thicker grades. It can be used satisfactorily with the natural finish but a number of manufacturers apply various colors to the surface at the factory. When applied, insulating board is usually the finish wall. Various decorative effects can be achieved by cutting V-joints, grooves and designs with special cutting tools,



INSULATING BOARD SHEATHING is applied by nailing to intermediate studs first with the nails about six inches apart. Nails around the edges are then spaced three inches apart.

#### Applications

The board can be nailed directly to studs or any solid backing. Where nailing is exposed, 1/2-inch board should be fastened with 11/4-inch galvanized finishing nails, cadmium plated needle point No. 17 gauge with 3-inch flat heads or No. 16 gauge brads. The finishing nails or brads should be driven at an angle and heads set flush with a nail set to avoid hammer marks. No type of nail should be set below the surface of the board, Concealed nailing can be done with 11/2-inch galvanized shingle nails, galvanized roofing nails or box nails. The flat-headed nails, where Commercial Building Insulations

I. Loose Fill Insulations

pse Fill Insulations
Fibreus

1. Mineral wool

2. Back wool

3. Glass wool

4. Class wool

5. Class wool

6. Class wool

7. Vegetable Fiber (wood)

Granular

7. Mineral (vermicuite)

2. Vegetable (granwiated cerk)

11. Blanket Insulations

Blanker Insulations
A. Wead fiber or mineral fiber wrapped
one or both sides with paper, one
side usually a vaper berrier
B. Multiple layers of treated wood fibers stitched to resped paper with a
reflected aluminum fall cover on one
side, compressed fee shipment
C. Cotton fiber lined or wrapped one
or both sides with paper.

III. Bott Insulation
A. Ploin (no vaper barrier)
B. Veger barrier on one side, plain on other
C. Vaper barrier one side, retainer paper on the other

IV. Structural Insulating Board A. Building board B. Sheathing C. Lath

Lath Tileboard

Reaf insulation board

Slab (or block) Insulations
A. Corkboard
B. Wood fiber and cement
C. Mineral wool with binder
D. Insulating board slabs
E. Asphalt-vermiculite slabs

F. Hard rubber G. Cellular glass

VI. Reflective Insulations

Bective Installation
Aluminum foil
1. Plain (no paper backing)
2. Paper backed foil
3. One or more layers of folded aluminum foil, with the folds and named separators joining air poper separators laining air spaces when installed

B Aluminum foll-surfaced plaster board
C. Dull sheet steel

VII. Miscellaneous
A. Confetti-like material sprayed on
with adhesive
B. Combinations of oluminum foil with
other types of insulation such as
blankets and structural insulation

board

C. Insulating board core surfaced on one or both sides with asbestos-cement board, metal or other ma-

covered, can be driven slightly below the surface.

Nails should be about 3%-inch from the edge of the board and about three inches apart around the edge. On intermediate framing members the nails can be six inches apart. All board joints should be centered on

framing members.

It is always well to unpack the board and set the pieces singly about the room or structure where they are to be used about 24 hours before application for adjustment to atmospheric conditions. Even after this is done, no boards should ever be forced tightly together. A moderate contact at the joints is recommended by manufacturers. Where the board is to be painted after it is installed, the manufacturer's specifications on priming and paint to use should be followed.

Insulating board sheathing is a structural board usually heavier in weight than building board. All of the sheathings on the market today are waterproofed either with an asphalt coating or with an integral asphalt treatment. Insulating board sheathing is supplied in two main size groups-1/2 or 12-inch thick, four feet



INSULATING BOARD LATH is applied with the long edges at right angles to framing or furring. When small areas are to be filled out insulating lath must be used; not wood.

wide, in lengths from eight to 12 feet with square edges, two by eight-foot sheets, 32-inch thick, usually with some kind of tongue and groove or fitted edge joint on the long edges.

This type of insulating board can be used as regular sheathing in frame construction with the various types of exterior finishes such as wood siding, shingles, stucco or brick veneer, FHA minimum requirements do not specify building paper where insulating board sheathing is used except under stucco or masonry veneer.



Infra Insulation Drawing

ONE type of reflective insulation is folded in manufacture and expands in two layers with supporting paper between to form two air spaces when stapled to the inside of framing members. It is used in ceilings. sidewalls and over unheated crawl spaces

#### REFLECTIVE

Reflective insulations, with their bright metallic reflective surfaces. differ from other types of insulation (Continued on page 472)

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Concrete with Permalite aggregate gives up to 20 times more heat insulation than ordinary concrete. Use it for floor fill insulation. It screeds smooth in one operation, forms a hard surface free from flaking and provides adequate structural strength. It's a superior base for floor radiant heating system. Permalite adds much to building quality...little to building cost.



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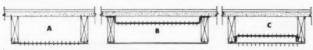
Without	obligi	ation	please	send	complete	information	08
Permalite		Have r	epresent	ative c	all.		
NAME							
COMPANY_							

ADDRESS



THIS shows the recommended method of installing foil reflective insulction in a ceiling below an unheated attic space when the attic is floored. If the attic is not floored, foil may be placed on the

upper edges of the joists. Note that it is indented beside the joists to provide at least a 34-inch air space. Both sides have reflective surfaces



THREE different methods of installing typical foil reflective insulation in floors above unheated spaces. (A) shows it on the bottoms of the joists: in (B) it is on top of the joists, indented to form an air space at least %-inch deep: (C) shows two layers of this foil, one of which has

reflective surfaces on both sides, installed at the bottoms of the joists. Reflective insulation is unique because it depends on its surface characteristics for insulating quality and also forms an efficient vapor barrier

Reynolds Metals Co. Drawings

(Continued from page 470)

because they depend entirely on their surface characteristics for insulating value. Insulation value is achieved with reflective insulations only when they face a 34-inch or larger air space.

#### Application

Reflective insulations are manufactured to be installed either between framing members or with nailing surfaces brought over the inside edges of the framing members and the reflective surface set in between the members. This type of insulation can also be installed on furring strips on masonry walls.

When foil-backed gypsum board is installed, the conventional application techniques for gypsum board are used, except that the side of the board with the foil on it must always be nailed to face the framing members or furring strips.

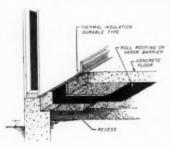
#### SLAB

Slab insulations are made of a number of materials in small, rigid units usually one inch or thicker in sizes up to 24x48 or 36x36 inches square. The general kinds are: 1—corkboard; 2—wood fiber and cement; 3—mineral wool; 4—cellular glass; 5—vegetable or wood fiber board.

In home building and light construction the slab insulations are being used at an increasing rate to retard heat loss from concrete slab floors laid directly in contact with the ground. In cold climates it is essential that the perimeter of concrete slab floors in structures designed for human occupancy, particularly houses, have adequate insulation from the foundation and from the ground, not only to avoid heat loss but to add to the comfort and health of the occupants.

#### VAPOR CONTROL

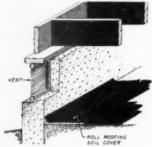
Two reasons why excessive moisture vapor is more prevalent in present day houses than in those erected a few years ago are (1) a greater



CONDENSATION may occur winter or summer on concrete slab floors laid on the ground without adequate insulation. The perimeter insulation under and on the edge of the slab as shown above should be waterproof or thoroughly covered with asphalt and should have a resistance value (R) of at least 2.0. A recess is provided along the wall and in the floor in which to lay the insulation. The use of low density concrete with vermiculitie as part of the aggregate or the use of thermal insulation below the floor would reduce the possibility of summer condensation.

number of small, basementless-type houses are being built, and (2) improvements in materials along with caulking, weather stripping, storm windows and storm doors make houses more nearly air tight. The use of thermal insulation, more wide-spread than ever, increases the inside surface temperatures of exposed walls, floors and ceilings, providing added physical comfort with savings in fuel. This also effectively minimizes the possibility of condensation

forming on the room surfaces of exposed walls, floors and ceilings. Because the insulated areas, however, make the outside surfacing materials colder than those of uninsulated construction, it is especially important that the insulation be properly in-



IN CRAWL spaces under basementiess houses condensation control can be assisted by laying roll roofing weighing at least 55 pounds per 108 square feet on the surface of the soil with edges lapped at least two inches. Covers of this kind greatly restrict the evaporation of water and somewhat less ventilation is required than when no covers are used. Crawl space ventilation should be placed in the corners and as high as possible in the walls or foundation. The minimum number of ventilators recommended is four with one near each of the corners.

stalled, along with whatever collateral materials or means which will prevent the passage of excessive moisture vapor to these cold exterior surfaces.

Moisture vapor in a house is beneficial and necessary, but it must be controlled through proper application of moisture barriers and ventilation.

Moisture sources may be many and will vary with types of construction, climate, weather changes and living habits of occupants of the house. Usually moisture sources come under these three classifications: (1) Moisture due to soil or structural conditions; (2) Moisture-creating equipment and living habits in the home; (3) Tightness of construction, without allowance for the escape of excess moisture vapor.

#### Application

Basement moisture sources can be minimized by the following corrective measures:

- Install adequate drainage tile at the foundation footings, with drain into dry well.
- Waterproof foundation walls and concrete floor according to recommendations of the Portland Cement Association.

(Continued on page 474)

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CHOICE OF INSULATION

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VAPOR BARRIE

FIRE-GUARD rock wool batts

Here's the only rock wool batt
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barrier that resists fire, doesn't feed it! They are
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vapor barrier —
keep comfort high
without sacrificing
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ting speed and ease. Firmly-felted, easy to handle Fire-Guard batts come in full-thick and semithick sizes that fit snugly between standard framing members.

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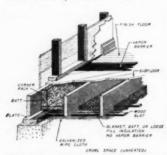
PAGE STATE

(Continued from page 472)

 Install bituminous joints between the concrete floor and the foundation with a waterproof membrane under the concrete floor.

 Install a drain in the concrete floor, sloping the floor to the drain.

5. Install adequate gutters and down spouts that drain to storm sewers or well away from the foundation.



IN THIS method of construction a vapor barrier is recommended between the subflooring and the finish floor, with cold or lower side of the floor left permeable. Blanket, batt or loose fill insulation is shown supported on whre cloth and wood slats nailed to the joists. Note the corner pack. This must be installed so it will remain permanently in place. Where these corner packs are used it is especially important that the crawls space be well ventilated and that soil covers as shown at the left be used in damp locations to prevent condensation on the sill

Make certain the chimney is of adequate size.

7. Ventilate the basement in dry weather.

Moisture from cratel spaces under first floors usually amounts to more than that from any other source. Good practice in condensation control in crawl spaces includes the following:

 At least four ventilating openings, with one near each corner of the building. Placed high.

Do not close ventilation any time during the year.

3. Stopping the moisture from the ground from entering the air in the confined space by covering the ground with a vapor-resistant durable material. A good water-proofed concrete slab or heavy roll roofing has been shown to be effective. A roll roofing, either mineral surfaced or plain, weighing at least 55 pounds per 100 square feet, laid with 2-inch lapped joints over a rough-graded surface, may be expected to serve satisfactorily for many years.

The fault lies in lack of control of moisture vapor, lack of good ventilating practices, and failure to eliminate stubborn sources of moisture.



Figure 6.—Condensation zones.—Zone I roughly includes the areas with design temperatures -20° F. and colder; sone II 0° to -10° F.; and zone III areas warmer than 0° F.

Type of roof	Condensation zone							
and occupancy	I	п	ш					
(a) Flat roof. Slope less than 3 inches in 12 inches. No occu- pancy contempla- ied.	Total net area of ventilation should be ½500 to distributed uniformly at the eaves plus a vapor barrier in the top story ceiling. Free circula- tion must be provided through all spaces.	Same as for sone I	Same as for some I.					
(b) Cable roof. Slope over 3 inches in 12 inches. No occupancy con- templated.	Total met area of at least 2 louvers on opposite sides lo- cated near the ridge to be 1500 % plus a vapor barrier in the top story ceiling.	Same ventilation as for some I. A vapor barrier is not con- sidered necessary.	Same as for some II.					
(c) Hip reaf. No occu- pancy contem- plated.	Total net area of ventilation should be \$100.7 with \$60.7 distributed uniformly at the eaves and \$60.7 located at the ridge with all spaces in- terconnected. A vapor bar- rier should also be used in the top story ceiling.	Same ventilation as for some I. A vapor barrier is not con- sidered necessary.	Same as for zone IL					
(d) Gable or hip roof. With occupancy contemplated.	Total net area of ventilation should be 1560 * with 1560 * of the 1560 *	Same as for some I	Same as for zone lexcept that a vapor barrier is not con- sidered necessary is insultation is omitted.					

<sup>1</sup> It is recognised that in many areas increased ventilation may be desirable for summer comfort <sup>2</sup> Refers to area enclosed within the building lines at the cave level.

THE\_CONDENSATION zone map above can be used with the table below it as a quide in determining the potential moisture vapor condensation situations which should be considered in normally tight, well-insulated structures in various parts of the United States. Zone I roughly includes the areas with design temperatures—20 degrees F. and colder: sone II—0 to 10 degrees F.; and zone III areas warmer than zero degree F. The table is keyed to the map and contains recommended good practice for loft and attic ventilation

INDIVIDUAL SOUR	 of Four)	IN HOUSES	
		P	ounds of
		Vapo	r Produced
Operation			Operation
Floor mopping (per sq. ft.)	 		0.03
Clothes drying (per week, when			
Clothes washing (per week) .			
comes meaning (per meen) .	 		4.00
Cooking	From food	From gas	
Breakfast	 . 0.34	0.56	0.90
Lunch	 . 0.51	0.66	1.17
Dinner	 . 1.17	1.52	2.69
Bathing—Shower	 *******		. 0.50
tub	 *******		. 0.12
Dish washing			
Breakfast	 	**********	. 0.20
Lunch	 		. 0.15
Dinner	 	**********	. 0.65
Human contribution (per hour)	 *******	**********	. 0.46
Gas refrigeration (per hour)			
			0.04

# BUILDERS REVEAL SECRETS of New Ways to Insulate and Plaster, Get Better Results, Cut Time and Cost

#### RADIANT HEATING SPECIALIST FINDS INSULATING CONCRETE INCREASES EFFICIENCY!

CRYSTAL LAKE, ILL., Nov. 5, 1950 -More than 300 floor panel radiant heating installations have taught Miles Westbrook, local heating contractor, some interesting facts about insulation. As a result of his experience, he specifies that a layer of Zonolite Insulating Concrete must be laid over the levelled ground before radiant heating coils are installed. Says Mr. Westbrook. "Heat loss to the earth from a floor slab without insulating concrete is usually high. Zonolite Insulating Concrete keeps heat from going downward and, over a period of time, saves a good deal of fuel."



Mr. Westbrook adds, "Over several seasons, we have found in homes where floor coils were laid over Zonolite Insulating Concrete, that override and lag were much less of a problem . . . than when coils were laid over cinders or other in-

sulation. Also . . . panels without a Zonolite insulating base needed much higher water temperatures to maintain comfort.'

#### **Veteran Contractor Tells** How He Does Better Plastering with Zonolite!

CINCINNATI, OHIO, Nov. 15, 1950-C. W. Sittason, local contractor who has been in the plastering business for over 29 years, has found that he can eliminate many plastering difficulties by using Zonolite Plaster Aggregate. After using Zonolite plaster on a large Cincinnati ceiling job he said, "Zonolite plaster adhered to the base coat better . . . drop-outs and over-night laps gave no trouble . . . screeding alone produced a finish that looked like trowelling!" He also found his men showed great enthusiasm in working with Zonolite.

Mr. Sittason himself enthusiastically states, I heartily recommend Zonolite Plaster Aggregate and Zonolite Acoustical Plastic to improve the quality of any

plastering job!'

#### House completely insulated in 2 hours!



SIOUX FALLS, SOUTH DAKOTA, Oct. 10-Robert Stoneall, local building contractor, reveals his unique use of Zonolite Vermiculite Insulation to completely insulate a home in only 2 hours with just 2 men-including time spent unloading bags and cleaning up after the job is finished! His time and money-saving method enables him to complete side-wall and attic insulation in a 24' x 30' house in a fraction of the normal time. Mr. Stoneall says,

"You can't beat ZONOLITE for insulation and ease of installation.

all's method: By putting the 2 x 4 plates on top of the ceiling joists, he leaves access in the attic so that ZONOLITE may be poured down the sidewalls from the top.

Sidewalls are poured first. The light granular nature of the material permits it to run freely between the studding, all the way to the foundation, filling the space to a uniform thickness. The wall is vibrated lightly with a rubber mallet to produce settlement. Spaces under window openings are filled as the lath is installed.

When sidewalls are full, the remaining bags of ZONOLITE are dumped in the center of the attic, then raked and leveled between the joists to a 35% in. thickness.



PUT NEW TIME AND LABOR SAVING ZONOLITE INSULATION TO WORK FOR YOU! GET

	1
Copolite is a registered trade mark	TIV.
Zonalite Company, 135 S. LeSalle St., Dapt. AB-42 Chicago 3, Illinois	
Please send me booklet G-24 on Zonolite Zonolite Insulating Fill.	products,

NSULA	Name
AT YOUR	Address
MBER OR BUILDING	City

including

# TONS of THORO System Materials used by George Sheaf & Co.



T main



September 6th, 1951

Wr. Schart C. Saunders Standard Dry Wall Products, Dat. Box E Swy Sagle, Panneykyanda

#### Sear Mr. Saunders:

For several years now, we have been using your THURO STATES Products, WATERFLET, THOROGELL, and QUICKELL, and thought you would be interested in the results we have obtained with than

We here used THOMOMIAL, applied in two brush costs as per your specifications, as an exterior foundation costing and have found this method of exterprocing foundations not only to be highly effective but economical aswell as easy to apply.

We have used THOMOSMAL and QUICKSEAL, above grade on assembly walls, both exterior and interior, and are very well matisfied with the results, baring obtained completally sealed walls as well as describing finishes that have proven as durable as your literature maintains.

We have also enjoyed excellent relations with your distributer in Culumbus, The Columbus Builders Supply Company, and found Mr. Sern of that company very cooperative and helpful whenever we have hel remem to call on him.

In the past we have used samp tone of THOROGEAL and QUICKEAL under most every condition and fromd your claims for their permanence and effectiveness to be entirely justified, Finness to assured we would not hesitate to recommend their use where a need waterwooding and heastifying this rest is resulted.

Sincerely,

Les. Sheef

GI/No

This year marks our 40th year in the manufacturing of high quality masonry materials. Today, from coast to coast, the name "THORO System products" is high on the list of specified materials by leading architects, engineers and contractors who, themselves, have achieved fame by recognition of good products.

Wilberforce State College, Wilberforce, Ohio. All interior exposed block walls and ceilings received one coat of THOROSEAL (Base Coat).





QUICKSEAL (Finish Coat) was used to provide final protection and beauty, with the wide variety of colors meeting all decorative requirements.

Get our 20 page brochure pictorially described in detail, "How to Do it."

#### Standard Dry Wall Products

NEW EAGLE, PENNSYLVANIA





The durability, economy, versatility and great strength of concrete make it one of the builder's most useful materials

CONCRETE—made by mixing ceaggregates-has taken its place today as one of the most widely used materials in house construction. Although concrete is used in some way in every house, a concrete house is considered one which has concrete foundations, floors, walls, and a firesafe roof. A concrete house will either be of poured reinforced concrete or of concrete masonry. The uses of concrete and concrete masonry for foundations, floors, decks, and walls are part of the fundamental techniques of every builder. New applications for existing products, new materials, and new methods are extending the uses of concrete in the small homes and light construction field.

#### CEMENT PRODUCTION

Portland cement consists of limestone, clay or shale, gypsum, iron oxide, and other possible admixtures. The basic ingredients are quarried, crushed, dried, blended, and ground to a fine powder called "raw mix." This mix is further blended for complete uniformity of product, and carried to a kiln. In the cement kiln, which is a long rotating cylinder blower fired at one end, the mix is burned to a partial fusion at about 2700 degrees F. It emerges and is cooled, forming a glasshard clinker resembling pebbles.

About 3 per cent gypsum is added to the clinker, to control the rate of hardening of the cement, and the mixture is finish ground to cement in tube mills. The result is a powder so fine that it will pass through sieves which will hold water. The finished cement is conveyed to silo-like storage tanks.

From storage, the finished cement is either loaded into bulk cars or packed into bags. It is of interest to note that the bags are filled after being sewn shut; the cement is put in the bags by a fine nozzle which is automatically shut off when the correct weight is reached. Although the standard unit for cement is the barrel, this type of container is obsolete and no longer in use. The standard bag of cement contains 94 pounds, which approximates one cubic foot.

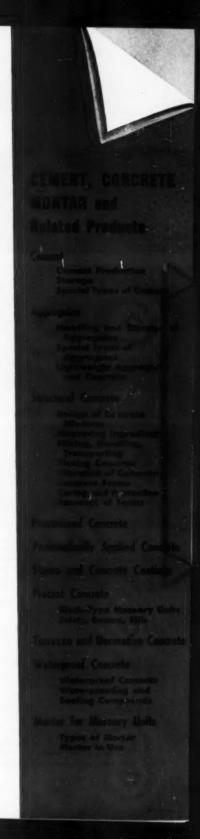
#### SPECIAL TYPES OF CEMENT

In addition to the basic portland cement which serves most of the needs of the construction industry, there are many special types for applications where specific properties are needed. High early strength cement permits concrete to be placed in service and forms stripped more quickly. High sulfate-resisting cement is used widely in the West where excessive sulfate chemicals are present in the air and soil.

#### Air-Entraining Cements

Air-entraining cements contain small amounts of soap-like or fatty ingredients ground up with the normal clinker. Concrete made with these cements, or with other air-entraining agents introduced on the job under careful control, contains billions of microscopic air cells throughout each cubic foot of concrete. These relieve internal pressure on the concrete by providing tiny chambers for the expansion of water when it freezes.

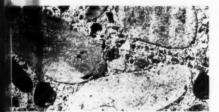
Air-entraining cements were first developed for highway concrete to combat the scaling action of the calcium and sodium chlorides which are used to melt ice. The microscopic air cells produce a concrete which is highly resistant to cycles of freezing and thawing, wetting and drying, and frost action, and also has a remarkably high degree of durability and











Above, from top to bottom, are shown portions of well-graded sand, gravel, and coarse aggregates. The lower photograph is a cross-section of quality concrete, marked by the absence of voids

workability. Air-entrained concrete with normal aggregates is from three to six per cent lighter in weight than otherwise. There may be some loss in strength with normal cement-water ratios, which require slightly more aggregate. This may be offset by increasing the amount of cement per cubic yard. Air-entrained concrete has less slump than regular concrete. Because there is no difference in price between regular and air-entraining cement, the latter is steadily advancing in popularity with builders.

Other special types of cement are white cement, which is a portland cement made of selected raw materials and by processes which will introduce no color, staining, or darkening of the finished product. Waterproof portland cement is made by grinding water-repellent materials with the clinker from which it is made.

#### Refractory Cement

Refractory cement is not a true portland cement, but is a calcium-aluminate hydraulic cement having many properties unlike portland cement. Refractory cement make possible the use of concrete for many purposes and conditions where ordinary concrete is unsuitable, such as for furnace and kiln linings and chimneys. Refractory aggregates, such as crushed salvage firebrick, must be used in such mixtures.

The cement used by the Romans in ancient times was a volcanic rock of alkaline silico-aluminate composition, called pozzolana. This cement formed a very stable concrete due to a chemical reaction between the free lime and the pozzolana. Similar characteristics are found in fly ash, and research is under way at the present time to determine the effects of the addition of fly ash to cement. Fly ash, suitably treated with alkalines and combined with portland cement produces a concrete of greater compressive strength and sulfate resistance

than is obtained by other cements, on the basis of present tests.

#### **AGGREGATES**

The inert materials such as sand, pebbles, or crushed stone that are mixed with cement and water to make concrete are known as aggregates. Although they are usually considered as inert materials acting as fillers, the aggregates compose some 66 to 78 per cent of the concrete by volume Aggregates must be clean, free of clay, dirt, coal, silt or other matter which would inhibit proper coating by and boarding with the cement paste.

Both fine aggregates, such as sand, and coarse aggregates, like gravel, should meet the requirements of "Standard Specifications for Concrete Aggregates," ASTM Designation C33. Generally speaking, sand and gravel supplied to the builder by local materials dealers are of good quality. Bank run gravel, the mixture of sand and pebbles taken from the bank or pit without screening, usually has a higher percentage of sand than is required for a correct mix. and the proportion may vary greatly throughout different parts of the bank. If it is desired to use bank run gravel because of its ready availability, it should be screened through a 1/4-inch mesh, and the sand and pebbles thus separated combined in correct amounts in the concrete.

The size of the aggregates depends upon the thickness of the section to be poured. All sand should pass through a ½-inch mesh. The maximum diameter of coarse aggregates should not be greater than one-fifth of the narrowest dimension of the concrete member in which it is being used.

#### Other Aggregates

In addition to sand and gravel, other materials used as aggregates in concrete include cinders, blast fur-

#### SUGGESTED PROPORTIONS OF WATER TO CEMENT

		gallons of dd to each 1		Tri			
Kind of Work	Domp sond	Wet	Very wet	Cement,	Sand, cu.ft.	Gravel or crushed stone, cu.ft.	Maximum aggregate size, inches
Foundation walls which need not be waterlight; footings for walls, columns and chimneys; retaining walls, garden walls.	61/4	(Average sand) 51/2	43/4	1	23/4	4	17/2
Watertight basement walls, walls obove ground, driveways, walks, floors on ground, basement floors, porch floors, paved terraces, concrete steps.	51/2	(Average sand) 5	41/4	1	21/4	3	1 to 11/2
Suspended reinforced concrete floors of all types; reinforced concrete posts and columns, sills, lintels.	51/2	(Average sand) 5	41/4	1	21/4	3	3/4





nace slag, burnt clay, pumice, and expanded vermiculite. Cinder concrete is made of cinders, cement, and water; or cinders, sand, cement, and water. In order to be suitable for concrete, cinders should be hard-burned boiler cinders, free from fine ash, and with a combustible content of not more than 35 per cent by weight. Household ashes are too fine and powdery and should never be used.

Cinder concrete is used for certain classes of work such as roof saddles, floors not designed for carrying heavy loads, and the manufacture of cinder blocks. The value of cinder concrete is chiefly in its light weight.

Blast furnace slag has found an increasing use as a coarse aggregate for concrete. The slag particles are extremely hard, and because of their pitted surfaces are firmly held in the matrix of cement and sand. Generally, blast furnace slag for concrete work should have a weight of 65 pounds per cubic foot or more, depending on the abrasion to which the concrete is subjected.

#### Lightweight Aggregates

Concrete made with the usual types of aggregates weighs on the average about 150 pounds per cubic foot. Concrete of a lighter weight can be produced by the use of an admixture which causes swelling of the mix, or by the use of lightweight aggregates. The admixture has been used chiefly for floor and roof fills, giving a concrete weighing about 50 pound per cubic foot. The strength of such concrete, but in such uses strength is not an important factor. With admixtures, the swelling occurs after the concrete is placed, so that allowance must be made for the increase in volume.

Lightweight aggregates are used in some structural concrete and in precast units such as concrete masonry. floor joists, and precast roof slabs. Burnt clay, expanded blast furnace slag, pumice, and expanded vermiculite are some of the materials used. Sand is often added as a fine aggregate to improve the workability of the mix. Concrete weights of from 40 to 110 pounds per cubic foot are obtained, depending on the type of aggregate and the use for the concrete. Higher cement factors are required for given consistency and strength with lightweight aggregates than for concrete using ordinary aggregates.

Lightweight aggregates are porous and must be wet thoroughly before being used. A larger proportion of





## Five Different Ways for Placing Concrete

On this page are five approved methods for placing concrete, each the best one available for a particular job. Clockwise, from top to bottom: the hand-mixed, shoveled-in-place technique is still best and most economical for small placements. The wheelbarrow carries most of the poured concrete to its final place, although the convenience of ready-mix trucks shown in the next photo has taken over much of the wheelbarrow's work. Hoists and chutes are economical for large jobs; the adjoining photo shows concrete being pumped at a large Indiana housing project.





Heating of materials is necessary for cold-weather mixing and pouring of concrete. A fire in a large pipe keeps aggregates heated

STRUCTURAL CONCRETE

Concrete consists of hard aggre-

gates held together by a hardened

paste. This paste is the determining

factor in forming the qualities of the

concrete, if the aggregates them-

selves are adequate. The paste is a

mixture of portland cement and wa-

ter, and hardens following the chemi-

cal reaction known as hydration. It

is always necessary to use more wa-

ter than is needed for hydration in

order to provide workability of the

mixture. Typically, the cement-water

fine aggregates is generally required, because of the rough surfaces and irregular shapes of light aggregate particles.

Lightweight aggregates should be obtained from reliable dealers and producers equipped to supply a uniform, dependable product. Since there is a considerable variation between the different types of lightweight aggregates, the user must rely on the data supplied by the producer for his product only, and should also follow manufacturer's recommendations carefully for best results.



Prefabricated forms save the builder time and money. The units shown above are of rigidly braced metal panels

	Type of Wt. of aggregate per cu.ft. (lb.)						Wt. per cu.ft. of concrete using aggregate (lb.)
Burned clay	10	sh	ale			40-60	100-120
Expanded sla	10					40-60	90-100
Cinders						40-50	110-115
						(plus sand)	
Pumice						30-60	60-90
Diatomite						28-40	55-70
Perlite .						6-16	40-45
Vermiculite						6-10	25-50

of the total concrete by volume, of which 7 to 14 per cent is cement and 15 to 20 per cent water. Aggregates take from 66 to 68 per cent of volume.

Water used for mixing concrete should be free of acids, alkalis, or oils. Any water which is suitable for drinking may be used for concrete mixing unless abnormal quantities of sulphates are present.

#### Design of Concrete Mixtures

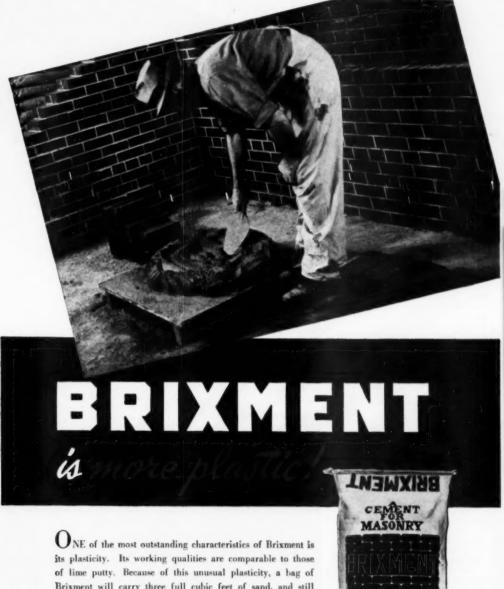
Concrete mixtures should be designed to give the most economical and practical combination of materials which will produce the necessary workability in the fresh concrete, and the required qualities in the hardened concrete. The different factors entering into the precise calculation of optimum amounts of cement, water, and aggregates are too detailed to enter into here; a comprehensive outline is given in the booklet "Design and Control of Concrete Mixtures," available from The Portland Cement Association, 33 W. Grand Ave., Chicago, 10, Illinois, Suggested concrete mixes for different types of home construction are shown in the adjoining table as a guide, which may be modified as local conditions and experience dictate.

#### Measuring Aggregates

Quality concrete begins with the accurate measurement of the ingredients. Haphazard division of sacks is an inadequate method for measuring cement, and batches of at least one-bag size should be mixed if practical. On small jobs, weighing may be efficiently accomplished on a platform scales set on the ground with runways at either side so that wheelbarrows may be run on and off. When several wheelbarrows are used on the same scales, they should be weighted so that they all have the same tare. The men soon become skilled at filling the wheelbarrows so that very little need be added or taken off to give the correct weight.

#### Measuring Cement

If bagged cement is used, mix in full bag units. On jobs requiring less than full bag mixes, it is better to weigh the cement rather than divide a bag by volume. On large-scale proj-

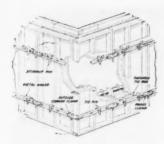


Brixment will carry three full cubic feet of sand, and still make good workable mortar. . . .

This exceptional workability makes it easy for the bricklayer to secure neat, clean brickwork, with the brick properly bedded and the joints well filled. The final result is a better job, at lower cost.



LOUISVILLE CEMENT COMPANY, Incorporated, LOUISVILLE, KENTUCKY



ects where bulk cement is used, a springless scale for weighing cement is the most accurate and efficient method.

#### Measuring Water

Because of the importance of the correct amount of water, accurate and dependable means for measuring the mixing water are essential. Portable mixers are generally equipped with water tanks and measuring devices that are reasonably accurate when properly used. The horizontal tanks used on mixers some years ago cannot be depended on for accuracy; the vertical ones on newer mixers are more accurate. For small projects, a bucket may be calibrated and marked.

#### Mixing the Concrete

In mixing, it is important to get all the particles of the aggregate thoroughly coated with the cement paste. The time required for thorough mixing depends on several factors. Specifications usually require a minimum of one-minute mixing for mixers up to a one-yard capacity, with an increase of 15 seconds mixing time for each additional half-yard or part thereof. The mixing period should be measured from the time all the solid materials are in the mixing drum, provided all the water has been added before one-fourth the mixing time has elapsed. The steps for most efficient charging of the concrete mixer are as follows:

- 1. Add about 10 per cent of the water to be used.
- 2. While allowing the water to run, add the aggregate.
  - 3. Add the cement.
- 4. Add the last 10 per cent of the water.

After mixing for the correct time on the basis of the size of the mixer, the concrete must be discharged and placed promptly. One and a half hours is the maximum time that may elapse before pouring, without seriously affecting the characteristics of the finished concrete. The initial set takes place within two or three hours,



Slabs of prestressed concrete make the 8-foot overhang of the eaves possible here

and water should not be added to rework mixtures.

#### Mixer Operation

Mixers should not be loaded above their rated capacity, nor at greater than recommended speeds. If additional output is needed, it should be obtained with additional or larger mixers, not by overloading or speeding up the equipment on hand. If the blades of the mixer become worn or coated with concrete, the mixing action will be less efficient. Badly worn blades should be replaced, and the mixer cleaned after each day's work. Any hardened concrete should be removed before proceeding with fresh mixing.

#### Handling and Transporting Concrete

Each step in handling, transporting, and placing concrete should be carefully controlled to maintain uniformity through the batch and from one batch to another, so that the completed structure will be of uniform quality throughout. It is essential to avoid separation of the coarse aggregates from the cement-water-fine aggregates paste, or separation of the water from the other ingredients. Segregation at the point of discharge from the mixer can be avoided by providing a down pipe at the end of the chute so that the concrete will drop vertically into the receiving hopper, buggy, or wheel-barrow.

All hoppers and mixers should have a vertical drop at the discharge gate. If the concrete is discharged at an angle, the heavy aggregates are thrown to the far side of the buggy or barrow, and the cement and fine aggregates are dropped at the near side, resulting in a segregation that may not be corrected by further handling of the concrete.

The home builder uses either wheelbarrows or concrete buggies for transporting concrete from the mixer to the forms. Buggies made in sizes from 6 to 11 cubic feet relieve the laborer of the weight of the load.



Stucco permits flexibility in design, is well adapted to contemporary architecture

# rinity White

THE WHITEST WHITE CEMENT

Use Trinity white—the whitest white portland cement. It gives extra
eye-appeal to ... architectural concrete units ... stucco ... terrazzo ... cement paint.
Trinity has many special uses because of its beauty and light-reflective
properties. Trinity white is a true portland cement that meets all Federal and ASTM specifications.
General Portland Cement Co., 111 W. Monroe St., Chicago; Republic Bank Bldg., Dallas;
816 W. 5th St., Los Angeles; 305 Morgan St., Tampa; Volunteer Bldg., Chattanooga.

a true portland cement

As white Son or snow



Pneumatically applied concrete is successfully used both on new construction and for repairing old concrete which has deteriorated

(Continued from page 482) and are designed for easy dumping and rapid discharge. Runways should be smooth and fairly rigid to minimize any tendency to segregate.

#### Placing Concrete

The first essential in the placing of the mixed concrete is the preparation of the forms, exposed surfaces, and sub-grade. Sub-grade should be trimmed to the required level. Low spots should be filled and tamped. The sub-grade should be moistened to minimize extraction of the water from the concrete. This is especially important in pouring pavements, floors, and other slab work in hot weather. All loose material should be cleaned out.

Forms should be well braced, tight, clean, and of a material suitable for the texture of the finished concrete. Nails, sawdust, and other debris should be cleaned out. Forms should either be oiled or saturated with water to reduce water absorption and facilitate removal after the concrete has set. Plywood forms are frequently lacquered instead of being wetted or oiled. Reinforcing steel should be clean and free of loose rust or mill scale.

When placing new concrete against old or hardened concrete, it is necessary to secure both a good bond and a watertight joint. The hardened concrete should be clean, rough, and moistened. Some of the aggregate particles should be exposed.

On floor slabs to be built in two courses, the top of the lower surface should be brushed, just before it sets, with a stiff fibre or steel broom. It must then be protected and thoroughly cleaned before the second course is placed. Old concrete that is to be bonded to new concrete in patch or alteration work must be thoroughly roughened and cleaned. In most cases it is necessary to chip

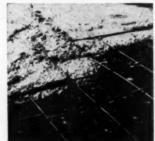
off the entire old surface to get a satisfactory bond.

When pouring the second course of a two-course floor, a coat of cement and water paste of the consistency of thick paint should be brushed on before the second course is placed. New concrete poured on rock or hardened concrete should be preceded by a cushion of cement mortar to prevent stone pockets and to secure a tight joint. Surfaces on which fresh concrete is placed should be thoroughly wet, but there should not be any pools of water.

In slab construction, placing should start at the far end, against concrete already in place. The mixture should not be dumped in separate piles, but should be placed as nearly as possible in final position. If the coarse aggregate has settled out, it should be redistributed. In walls, the first batches should be placed at opposite ends and additional concrete worked towards the middle of the wall. In large open slabs or areas, the perimeter should be placed first. In all cases the procedure should be such as to prevent water from collecting at the corners and ends of forms, and along form faces.

In pouring high walls or columns, the forms should be filled to within a foot of the top, at intervals of not more than six feet and in layers of about a foot thickness. The placed concrete is allowed to settle for one or two hours before the final foot is placed. When it is placed, it should be spaded, compacted, and straightedged. Steel troweling should be delayed as much as possible and held to a minimum.

Because there is a measurable expansion of concrete with increases in temperature, it is necessary to provide expansion joints in some structures. Butt strips, metal, asphalt-treated felt, and other devices are used for this purpose.



Steel reinforcing rods are used to increase the tensile strength of concrete. Note how the concrete is placed under the rods so that the reinforcing is imbedded in the concrete. Rods should be at least 3/4-linch from the surface



Precast joists offer the advantages of strength, economy, and fire resistance Concrete Vibration

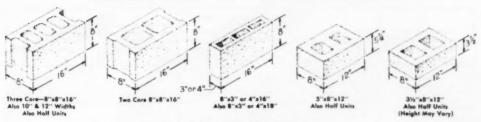
Vibration does not make concrete stronger, more water-tight, or more resistant to deleterious forces. It does, however, permit the use of stiffer, harsher mixes. Thus, either mixes of a lower water content or leaner mixes can be used. If less water is used, the concrete will be of better quality; if a leaner mix is used, the concrete will be more economical. Vibration is also of assistance in avoiding the difficulties from mixes that are too wet and tend to bleed and segregate. Thus better surfaces and better construction joints are produced.

Vibrators should not be used to move concrete long distances horizontally in the form. The concrete should be deposited as near the final location as possible, distributed in layers, and then vibrated. Some hand spading and puddling may be necessary to secure smooth finishes and reduce pitting on formed surfaces.

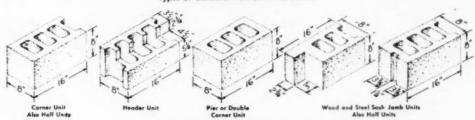
Vibrators may be powered by electric motor, gasoline engine, or compressed air. Both internal and external vibrators are used; the most common type is an internal vibrator consisting of a driving motor or engine and a long flexible shaft terminated by a vibrating element which is thrust into the concrete.

Internal vibrators should be inserted in a vertical position at intervals of 18 inches or so, depending on the type of equipment and the character of the mixed concrete. Spacing should be such that there is some overlapping of the area vibrated at each insertion. The vibrator should fully penetrate the concrete being placed, and may go into the layer below if the previously placed concrete becomes plastic under vibratory action. However, if the lower layer has stood for some time, penetration of this layer by the vibrator may cause a wavy line on the exposed surface at the junction of the two layers; this may be undesirable from the standpoint of appearance.

#### **Typical Hollow Concrete Masonry Units**



Types of Concrete Wall Units-Stretchers



Standard Specials for 8" Units Also Made in Two Types Similar Specials Are Regularly Furnished For 10" & 12" Units

National Concrete Masonry Association Data

#### Suggested Proportions of Water to Cement for Various Kinds of Concrete Work and Trial Mixes

		d U.S. gal		,	Irial mixtu	re		rials per c l Concrete		
KINDS OF WORK	· be	tch if sond	l is:	- Maria	Aggr	egates		Aggr	egates	
	Very	Wet	Domp	Sacks	Fine, cv.ft.	Course, cu.ft.	Lucks	Fine, cu.ft.	Coarse cu.ft.	
5-GAL. PASTE FOR CONCRETE SUBJECTED	TO SEVE	RE WEAR	WEATHER	OR WE	AK ACID	AND ALKA	LI SOLUTI	IONS		
Toppings for two-course work.  One-course industrial, creamery and dairy plant floors.	334	4	41/2	1	1% Maximum	size 1 ½ in.	714	13	22	
Thin sections of dense, strong concrete.	31/2	4	41/2	1	2 Maximum	2 1/4 n size 1/4 in.		16	18	
	31/2	4	41/2	1	2 Maximum	1 1/4 n size 1/6 in.	9	18	16	
6-GAL PASTE FOR CONCRETE TO B	WATERT	GHT OR	SUBJECTED	TO MOI	DERATE W	EAR AND	WEATHER			
Waterlight floors such as industrial plant, dairy barn, basement, etc. Waterlight basement walls.	41/4	5	51/2	1	2½ Maximum	3½ size 1½ in.	6	131/2	21	
All waterlight concrete for storage tanks, septic tanks, swimming pools, etc.	4	4%	51/2	1	2½ Maximur	2½ n size ¾ in.	61/2	161/2	161/2	
Concrete subjected to moderate wear or frost action such as walks, driveways, tennis courts, etc.  Reinforced structural beams, calumns, slabs, etc.	4	4%	51/2	1	2½ Maximus	2 n size % in.	71/2	181/4	15	
7-GAL PASTE FOR CON	CRETE NO	T SUBJEC	TED TO W	EAR, WE	ATHER OF	WATER				
Foundation walls, footings, mass concrete, etc.	5	51/2	61/4	1	234 Maximum	4 n size 1½ in.	51/4	141/2	21	
	41/2	51/2	614	1	3 1/4 Maximus	3 m size ¾ in.	51/2	18	161/2	
	45/2	51/2	61/4	1	31/4 Maximu	21/4 m size 1/4 in.	61/2	21	1436	

<sup>\*</sup>Quantities are estimated on wet aggregates, using trial mixes and medium consistencies (5-in. slump). Quantities will vary according to grading of aggregate and consistency of mix. Change proportions of fine and coarse aggregate slightly if necessary to get a workable mix. Quantities are approximate. No allowance has been made for waste.

NOTE If concrete aggregates are sold in your locality by weight, you may assume for estimating purposes that a ton contains approximately 22 cu.ft. of sand or crushed stone; or about 20 cu.ft. of gravel. For information on local aggregates consult your building material dealer.

Ortification Data

#### SUMMARY: Physical Requirements For Various Types of Concrete Masonry Units

Specification, serial	Minimum face-	minim	ve strength, um, psi, gross area	Water absorption, maximum, lb. per cu.ft. of concrete,	Moisture content, maximum, per cent of	
designation, and latest revised date	in.	Average of 5 units	Individual unit	average of 5 units	total absorption, everage of 3 units	
Hellow load-bearing concrete mosonry units ASTM C90,1944	1½ er over: Grade A* Grade B** Under 1½ and over ¾	1000 700 1000	800 600 800	15	40 40 40	
Hellew nen-load-bearing centrele masenry units ASTM C129, 1939	Not less than ½	350	300	-	10	
Solid load-bearing concrete masonry units ASTM C145, 1940*** Grade A Grade B	=	1800 1200	1600 1000	15 15	40 40	
Concrete units; masonry, hallow Federal SS-C-621, 1935				Average of 3 units	Average of 3 units	
Load-bearing units  Non-load-bearing units	11/4 or more 3/4 to 11/4 Not less than 3/4	700 1000 350	800	16	40 40 40	

		Compressiv minimus average g (brick fi	m, psi, pross area	Modulus of rupture, minimum, psi, (brick flatwise)		
		Average of 5 brick	Individual	Average of 5 brick	Individual	
Concrete building brick ASTM C55, 1937   Grade A Grade B	=	2500 1250	2000 1000	450 300	300 200	

<sup>\*</sup>for use in exterior walls below grade, and for unprotected exterior walls above grade.

Portland Cement Association Data

Precautions should be taken not to vibrate so much that segregation of the aggregates takes place. This may happen especially with concrete that is wetter than is necessary. Correct operation of the vibrator requires judgment by the operator to be sure that complete consolidation of the concrete is effected, and that no areas are missed, without causing any segregation. Sufficient vibration is usually indicated by submerging of the coarse aggregate particles, and the appearance of a line of mortar along the forms.

#### Concrete Forms

The general requirements for concrete forms are that they be strong, well braced, have little leakage, and be easily removed. The choice of form materials depends on the surface of exposed concrete desired. Wood forms are readily and cheaply made of tongue and groove sheathing, with 2 by 4's for studs and stringers.

Forms are more readily handled and removed when constructed in sections. Oiling the forms prevents adhesion of the concrete and makes removal easier. If the concrete surface is to be painted, paint and oil for the form must be selected that are suitable for such work. Parafin oil diluted with kerosene or benzene is a generally satisfactory oil for surfaces of forms which will later be painted.

Special grades of plywood for form use in one-half and three-quarter inch thicknesses are available for builders, in sizes up to 4 by 8 feet. There is also a special plastic surfaced plywood which reduces absorption, and provides a very smooth finish. Plywood forms can be re-used many times, and are especially adapted to projects where many buildings of the same style are erected.

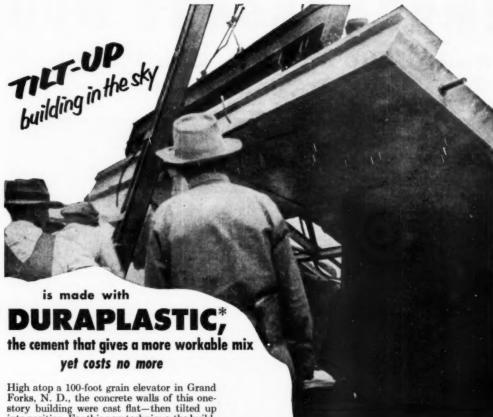
Manufactured form panels, form ties, and form-clamping devices offer time-and-labor-saving advantages to to the builder. Form panels are available in sizes from about 2 by 4 feet up to 4 by 8 feet. These are used in conjunction with a variety of connecting bolts, tie holders, etc. Both plywood and metal ready-made forms are available. Aluminum and magnesium form panels are light in weight, and because of their precision construction leave smooth surfaces requiring little or no rubbing or finishing. Plywood forms having a magnesium strip around the edges do not chip in use or handling.

Wood, plywood, pressed wood fibre or other forms which are absorbent should be thoroughly wet before using so that water will not be absorbed from the concrete. This will also apply to earth footing sub-grade, or to earth used as a form wall. It is practical to use earth as a form wall provided there is no danger of the dirt being mixed into the concrete. If it is used, spading should be done carefully.

(Continued on page 488)

<sup>\*°</sup>For general use above grade where protected from the weather with two coats of portland cement paint or other satisfactory waterproofing treatment approved by the purchaser.

<sup>\*\*\*</sup>Units with 75 per cent or more net area. The classification is based on strength and does not necessarily measure weather resistance.



into position. For this new technique, the builders specified a time-tested material - Atlas Duraplastic air-entraining portland cement.

They already had proof of Duraplastic's performance—because the elevator below was also Duraplastic-made! The increased plasticity and cohesiveness of Duraplastic concrete, which aids proper placement and helps to improve surface appearance, resulted in this neat slip-form job.

For more than a decade, Duraplastic has made better concrete for all types of structural jobs. Yet it sells at the same price as regular cement and requires no unusual changes in procedure. Complies with ASTM and Federal Specifications. For descriptive booklet, write Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

General Contractors Northern Construction Co., Grand Forks, N.D. Sub-Contractor: Hagenson Construction Co., Minneapalis, Minn. DURABLE JOB-Water gain and

segregation are minimized by Duraplastic's air-entrainment feature. and resulting concrete is fortified against the effects of freezing-thawing weather.

"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company

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THE MIX SHOWS-There's an important difference when the mix is made with Duraplastic cement. Less mixing water is required for a given slump, yet the concrete is more plastic, more uniform and easy to place.

Albeny, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Philadelphia, Pittsburgh, St. Louis, Waso.

AB D 138

(Continued from page 486)

Cylindrical forms of compressed impregnated fibre for columns are available, offering a substantial saving over the labor of constructing this type of form on the job.

#### Concrete Curing

After the concrete has been placed, the chemical process of hydration of the cement occurs. The initial curing reaction occurs quickly, but the secondary processes take place more slowly. The quality of the finished concrete is controlled to a considerable degree by moisture and temperature factors. Continued hydration of the cement in the concrete takes place ideally between 60 and 80 degrees F., and moisture in the concrete is necessary. No additional curing will take place after the concrete has dried out.

To promote curing, the placed concrete should be kept moist for a period sufficient to hydrate the cement adequately. This will depend on the thickness of the sections. There are many techniques for providing this continued moisture. Forms may be left in place for moisture retention. Slabs may be sprinkled or flooded by means of a dam around the periphery of the slab. Moisture-retaining covers such as burlap may be applied to walls and columns, and water-tight paper used on floors or slabs.

In all methods of keeping concrete moist after removal of forms, the moistening should be continuous. Alternate wetting and drying will not be effective, and may promote crazing or cracking of the surface.

Sealing compounds are available for improved curing. These are available in black, white, and colorless coatings, and should be applied as soon as possible after the surface has been finished. If there is any delay, the slab should be kept moist until the curing compound is applied. On formed surfaces, the forms are removed, the surface lightly sprayed with water, and the sealing compound then applied. Surfaces which should be protected against traffic should have an inch or more of sand or earth cover. This should not be put on sooner than 24 hours after the sealing compound.

The hydration reaction will not take place below freezing temperatures. To have effective hardening in cold weather, the temperature of the concrete must be kept at 50 degrees or more for at least five days. Some heat is generated in the concrete by the hydration. In cold weather it is necessary to provide additional heat from salamanders, oil heaters, etc., and protect the concrete with tarpaulins, straw, or a weather-tight en-

closure. If an enclosure is built, the warmed air must circulate around the outer members of the structure.

Cold weather concrete work may require that the water and aggregates be heated before mixing. In relatively mild temperatures, it will be sufficient to heat the water only; this is easiest and most efficient. Water should not be heated to over 175 degrees, when mixed with cement, as a flash set would otherwise occur. Hotter water may be added to the aggregates, which will cool it, before cement is added. Water is readily heated on the job by portable heaters having steam coils passing through a water tank, or even by placing water drums around a coke salamander, for small work.

In extremely cold weather, heating of both the water and aggregates is required. Aggregates may be heated on large projects by steam pipes in storage bins or piles, but it is more usual on small jobs to pile the sand and gravel over a section of culvert steel pipe in which a fire is built.

Calcium chloride may be used in cold weather to accelerate curing, provided the specifications do not prohibit its use. No more than two pounds of chloride per bag of cement should be used. This does not act to reduce the freezing point of the concrete; the optimum curing temperatures should still be maintained as closely as possible, and any concrete permitted to freeze within 24 hours after being placed will be permanently reduced in strength.

#### Removal of Forms

The advantage of leaving the forms in place for an extended period as an aid in the curing of concrete has been mentioned. However, there are reasons why it is desirable to remove the forms as soon as possible. For instance, patching of formed surfaces should be done as soon as possible, and this requires removal of the forms. If a rubbed finish is specified, the forms should be removed to permit rubbing before the concrete has become too hard. Also, it is often necessary to remove the forms to permit their immediate re-use.

Forms should not be removed under any conditions until the concrete is strong enough to carry its own weight and any construction loads it may be called upon to handle. Also, the concrete should be hardened so that it will not be damaged by the removal of the forms.

Care should be used in removing forms not to damage the concrete. Pinch bars should not be placed against the concrete surface, but should have a wedge or block interposed for protection. Recessed forms should be left in place as long as possible so as to shrink away from the concrete. Only wooden wedges should be used in loosening forms, and jerking loose should be avoided, as this will chip or break the edges.

#### Prestressed Concrete

In conventional reinforced concrete, the compressive strength of concrete is combined with the tensile strength of steel. This combination places definite limitations on the thickness and weight of unsupported spans, the size of columns required, and the weight of beams.

The basic theory of prestressed concrete is to eliminate or reduce the tensile stresses to which unsupported areas such as roofs, floors, and the walls of tanks and pipe are subjected. This is done by stretching the reinforcing steel so as to superimpose compressive stresses in the concrete.

A comparison may be made with a row of books. If the two end volumes of a row are merely lifted, the center books will remain in place. However, if the row is squeezed together with the hands at the ends, and then lifted, the whole row picks up as a mit. In the same way, tension applied to reinforcing rods or wire, sets up compressive strains in the concrete which greatly increases its strength.

These strengthening compressive stresses are induced in prestressed concrete in either one of two major ways; by pre-tensioning or by posttensioning of the steel reinforcement. In the pre-tensioning process, the steel is stretched before the concrete is placed or has set, and is anchored by bond within the concrete. After the concrete has hardened around the tensioned reinforcement, the jacks or stretching forces are released. As the steel seeks to shrink back to its original length, the tensile stresses are converted into compressive stresses in the concrete.

In post-tensioning, the steel is stretched after the concrete is hardened, and is anchored externally because of plates or other gripping devices. In this process, the steel is tensioned against the concrete so that the greater the tension on the steel, the greater the compression in the concrete.

. Because of the stresses involved, high tensile strength wire is necessary in prestressed concrete.

#### Pneumatically Applied Concrete

Concrete may successfully be applied by pneumatic pressure. Graded aggregate, less than ¼-inch in size, is mixed with portland cement and (Continued on page 490)

# **HOW SYMONS FORMS**

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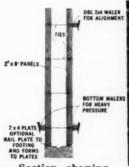
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Starting at a corner, panels of the outside form are erected. Spreader ties are placed in position and anchored on the same connecting bolt, locking panels together.



Inside panels join projecting ties. Forms are aligned and braced with walers.



3 Section showing inside and outside forms ready to pour.



4 To strip wall remove locking wedges and connecting bolts. Pull panels back easily. Break off tie loops with a ½ twist. Wall is smooth, strong and waterproof.

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(Continued from page 488)

placed in a pumping machine from which it is fed into a hose at about 35 to 55 pounds pressure. Water is fed to the nozzle at a pressure about 15 pounds higher than that of the dry mix, and is sprayed on to form a homogeneous concrete. Less water is used with this process — about 3½ gallons per bag of cement — because the impact force expels excess moisture, air, and uncoated cement.

This concrete may be shot against any appropriate sturdy surface, including earth, to a width of several inches without slumping. This method may be used for building swimming pools, for repairing, waterproofing, freproofing, and for protecting steel. Concrete blocks laid up without mortar or reinforcing, and shot with ¾-inch covering of pneumatic concrete have developed over three times the tensile strength of conventionally laid blocks.

The pneumatic application can be used for applying against a hydrostatic head, and the machine may also be used for applying plaster.

#### STUCCO AND CONCRETE COATINGS

Portland cement stucco is typically composed of one part of cement and three to five parts of damp, loose, well-graded aggregate. Hydrated lime up to 10 per cent by weight of the portland cement may be added as a plasticizing agent for better workability. Proportions should be accurately measured and thoroughly mixed. From three to five minutes of mixing time in a drum mixer is about normal.

Frame buildings to be stuccoed should have sheathing more than eight inches wide. This is covered with a 15-pound building paper, lapped three inches at joints and flashings. A steel reinforcing mesh is applied with furring nails that space out the mesh ½ to ½ inches. Reinforcing joints should lap an inch and be staggered and lapped three inches at flashings. The building is then ready for stucco application.

Another point to consider in the preparation of the structure is the avoidance of concentrated water flows, through the use of overhangs and downspouts. Hangers, fasteners, and other trim should be in place before the stucco is applied. Flashings should be installed around the tops and sides of all openings, particularly around chimneys that are to be stuccoed. Although stucco is occasionally run to the ground level, it is better to stop about six inches above ground to prevent moisture seeping and staining.

Stucco will bond readily to masonry and concrete walls. Concrete walls should be cleaned with a weak acid solution and rinsed to insure a clean bonding surface.

Stucco goes on in three coats, each being applied in one direction so that the mortar does not harden at the edges. Stops should be made only at natural divisions in the work. The first or scratch coat is applied about 38 of an inch thick, and allowed to set for 48 hours. A fog spray is applied, and the second, or brown coat, about 34-inch thick, is applied. Both of these coats are scratched to provide bonding for succeeding coats. The brown coat is permitted to moist cure for 48 hours, and should be air dried for about seven days before the final coat is applied. The finish coat should be not less than 1/2-inch thick, and is applied after the surface of the brown coat has been moistened.

A number of techniques and a variety of special equipment have been developed for treating finish coats of stucco to make it resemble stonework. When properly done, strikingly attractive results may be obtained. In some applications, after the stucco is scored to resemble mortar joints, the panels resembling stonework are individually colored in a non-uniform pattern. Much of the success of this type of work depends on the skill of the workmen and should not be undertaken unless experienced help is available.

#### PRECAST CONCRETE

Precast concrete is used mostly in the form of masonry units - concrete block, sill, slabs, etc. The development of the low-cost concrete block has been made possible largely by automatic concrete block-making machines, in which cement, water, aggregate and coloring are all mixed. formed, compacted and delivered for curing. Many of these machines are capable of producing as many as 10,000 units a day. At the other extreme, there are block machines operated by hand for farmers who have the time and suitable aggregates available for casting their own block. Many contractors find that a small concrete block plant is a profitable side-line, in addition to being a dependable source of quality block.

The wide variety of uses of concrete block include both load-bearing and non load-bearing functions. Foundation walls, piers, partitions, party walls, chimneys, back-up walls, silts, lintels and the like are all readily erected with concrete masonry units. The following is a partial list of the masonry unit forms now being made by manufacturers in a variety of sizes:

Slabs Cap Block Sash block Header block Coping block Floor filler block Siding block Ashlar block Pilaster block Steel sash block Catch basin block Brick Drain Tile

Chimney block Bull nose block Grade block Corner block Sill block Beam lintel block Wall block Roof tile Concrete pipe

Although these units are made in various sizes, their dimensions are usually modularly co-ordinated to simplify building problems. Actual dimensions are short ¼-inch or ¾-inch of normal sizes to allow for mortar joints. Thus, the standard 8 by 8 by 16-inch unit actually measures 7¾ by 7¾ by 15¾ inches. Concrete block are an economical masonry unit for houses because they are relatively large, more quickly set than brick, relatively true to size, and more economical of mortar.

Concrete masonry units may be made to have excellent fire-retarding and acoustical properties. Aggregates may be selected to give light weight or extreme density. In addition to sand and fine gravel, aggregates may include expanded slag, pumice, vermiculite, and other materials.

#### Structural Units

In addition to all of the different types of masonry units, a wide variety of structural units such as joists, slab sections, and wall sections are precast. Many of these sections are of pre-stressed construction, giving strength with light weight and permitting many new architectural applications and design treatments.

#### TERRAZZO AND DECORATIVE CONCRETE

Terrazzo, made with marble chips, cement, and water, is a decorative concrete floor material combining beauty, flexibility of design, permanence, and ease of maintenance. Terrazzo is usually placed in a layer two to three inches thick on a concrete base. It may be either bonded to the concrete or be an independent slab, The design may range from simple geometric patterns to intricately detailed pictorial panels. Outlines of differently colored areas are obtained by the careful setting of brass, white metal, or plastic strips. Both colored marble chips and color added to the cement are used to provide various tints and bues.

Terrazzo is also used as a service floor where appearance is not a factor, but durability, sanitation, and ease of maintenance are desired. Regular gray portland cement may be used, and aggregates selected on a basis of durability.

Colored concrete for decorative walks, driveways, and similar uses is most readily produced by the addition of color to the concrete after it has been placed. The coloring is mixed with approximately equal parts of cement and sand and dusted on the surface of the concrete after it has just started to set. The pigment-cement-sand mix is trowled into the surface, and provides a durable finish, while paints would soon wear off.

#### - Recommended MORTAR Mixes Proportions by Volume

Type of service	Cement	Hydrated lime or lime putty	Mortar sand in damp, lowe condition	
For ordinary	I-maioney cement or I-portland cement	1 to 1%	2 to 3	
	1-masenry tersent plus 1-portland	-	4 to 6	
winds earth- quakes or severe frost action Isolated piers		0 to 16	2 to 3	

\*Foderal Specifications SS-C-181b. Type III.

#### -Quantities of Concrete Block and Mortar

Wall thickness	For 16	0 sq.ft.	For 100 concrete black
in.	Number of block*	Mortar** Cu.ft.	Mortar** Cu.ft.
8	112.5	2.6	2.3
12	1125	2.6	2.3

\*Based on block having an exposed face of 75% x 155% in. and laid up with 35-m mortar joints.

\*With face shell mortar bedding—10 per cent waitage included.

#### - December of Materials Per Cubic Front of Martin

Morsar moser (values)			Quantities				
Connt	th drated form to time purty	datep, loose producing	OWNER	cimpot	Hydrated lim in time putty		
Sark	Cah.	Curt.	Sack	Sark	Cuft	6.1	
Mostery results	-	3	9.11	-	-	0.7	
Partial deserve		6	-	0.16	0.16	8.9	
Marroy news glas Partiend graphs	1000	6	0.16	0.16	-	67	
Partial cones	14	3		0.79	0.07	0.8	

Color in concrete can be obtained by any one of three methods: colored cement topping, dusting with pigments and cement, and applying acid

#### stains.

Coloring Pigments

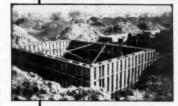
Pigment suitable for coloring concrete must fulfill the following requirements: (1) it must be durable under exposure to sunlight and weather, (2) must produce intense color, (3) must not react chemically in such a way as to harm the cement or color.

The best coloring agents are mineral oxides pigments. Others, such as organic dyes, have a tendency to fade and reduce the strength of the concrete. The natural oxides come directly from the mine and are satisfactory where dull colors can be used. Manufactured oxides are prepared for concrete work and produce

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bright colors. These are more expensive than natural oxides but many times their use is cheaper as less pigment is needed to produce certain shades.

Rules for coloring with the oxides are:

For blues use cobalt oxide.

For browns use brown oxide of iron.

For buffs use synthetic yellow oxide of iron.

For greens use chromium oxide.

For reds use red oxide of iron.

For greys or slate effects use black iron oxide or germantown lamp black, preferably black oxide. Common lamp black should not be used.

For tempering of shades these pigments can be mixed.

#### Amounts of Color for Colored Topping

Color is produced by weight proportion between color and cement and not by the cubic feet of the concrete used. Manufacturers suggest that the coloring material be used by weight for each bag of cement. A rule of the thumb is that pigment weights up to 10 per cent of the weight of cement may be used. Therefore 9 pounds of color can be used for each 94-pound bag of cement. However, the manufacturer's directions should be followed.

Aggregates used in colored cement should be as near the color of the concrete as possible. If these are not available the use of light colored semi-transparent aggregates should be used.

#### Mixing Colored Concrete Topping

For uniform coloring the pigment and the cement should be mixed together before being delivered to the job. Many times factory prepared colored cement is often economical to use. However, small batches can be mixed satisfactorily by sifting the two materials through a fine screen. For larger quantities the materials can be mixed in a dry concrete mixer. Recommended proportion for mixing the colored concrete on the job is 1: 1:144. For example—one sack of colored cement, one cubic foot of sand, and 134 cubic feet of coarse aggregate. These ingredients are dry mixed until a uniform color is obtained, then water is added.

Colored cement can be placed by any one of three methods: The two-course integral, regular two-course, or the one-course method.

The two-course integral method is one in which the colored topping is placed before the base course hardens. It is used where the colored concrete can be placed and finished immediately.

In the regular two-course method, the colored topping is placed after the base course hardens. The surface of the base course is left rough to secure a good bond. This method is generally used for floors. Before placing the colored topping the base course should be cleaned and dampened. The under layer should be grouted a short distance ahead of the colored topping. Colored toppings need to be at least one-inch thick.

In the one-course method a full thickness of colored concrete is poured. This method is seldom economical except in thin slabs or in light tints of color,

#### Dusted-on-Color

For floors subjected to light traffic, dusted-on-color can be used. A one-inch wearing surface is placed, and after screeding and leveling, the dusted mixture is applied imediately. The mixture is made with one part of cement. I to 1½ parts of sand, and the required amount of pigment. The sand should be well graded so that 80 per cent will pass through a No. 8 sieve, while not more than 3 per cent passes through a No. 30 sieve. The mixture should be applied uniformly at the rate of 125 pounds per 100 square feet. After spreading the color mixture it

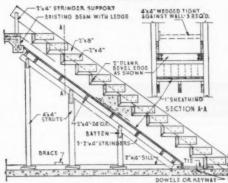
should be floated and worked into the slab. Floating should be discontinued as soon as the surface becomes wet, and resumed when the surface moisture has disappeared. After testing with a straight edge it should be troweled to a smooth finish.

#### Curing Colored Concrete-Scoring and Division Strips

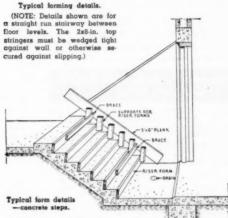
As soon as the colored concrete has hardened it can be covered with a one-inch layer of wet sand or other covering and kept wet for five days.

Concrete floors may be marked off into patterns by the use of an ordinary scoring tool on the fresh concrete. Scoring can also be accomplished by a power-driven car-

#### HOW TO FORM CONCRETE STEPS



LONGITUDINAL SECTION



Portland Cement Association Data

borundum disk cutting the hardened concrete. Difficulty in keeping the grooves clean is the main objection to grooving. Metal strips like those used in terrazzo floors can be used as division strips. They must be set at the finished concrete level if hand troweling is to be the only finishing.

#### Acid Stain Colors

Various tones of brown, buff, and green can be produced by inorganic acid stains. The chemical compound is applied to the concrete after it hardens.

#### CONCRETE COLUMNS

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#### AMERICAN BUILDER

79 W. MONROE ST.

CHICAGO 3, ILL.

#### STUCCO APPLICATION DATA

#### **Amounts of Coment and Sand Required**

NOTE—The areas covered by one barrel of cement or one cubic yard of sand, as given below, are calculated for an average sand and without allowance for waste. In estimating, allowance must be made for waste. Openings are not deducted. When figuring for stucco, the loss of mortar, forming the keys for the first coat, should be taken into account.

#### Area Covered by 1 Barrel of Cement in Various Mixes

Min	ture		ar Coat			
Parts by	Volume	1/4 Inch	% Inch	1/2 Inch	% Inch	1 Inch
Cement	Sand	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.
1	11/2	336	226	168	112	84
1	2	404	270	202	135	101
1	21/2	472	314	236	157	118
1	3	542	362	271	181	136

#### Quantities of Stucco Material Required Per 100 Sq. Ft. of Wall

		1:21/2 Mis		1:3	Mix	1:31/2 Miz		
	Cu. Ft. Mor- tar	ment	Sand	ment				
1/4"	2.08	.79	1.96	.68	2.06	.60	2.10	
36"	3.13	1.19	2.95	1.03	3.10	.90	3.16	
1/2"	4.17	1.58	3.94	1.37	4.12	1.20	4.22	
5/8"	5.21	1.98	4.92	1.71	5.15	1.50	5.27	
3/4"	6.25	2.37	5.90	2.06	6.18	1.80	6.32	
1"	8.33	3.16	7.86	2.74	8.24	2.40	8.42	

#### Area Covered by 1 Cubic Yard of Sand in Various Mixes

Min	dure		Thickness of Mortar Cost						
Parts by	Volume	1/4 Inch	% Inch	1/2 Inch	1/4 Inch	1 Inch			
Cement	Sand	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.	Sq. Ft.			
1	11/2	1508	1006	754	503	377			
1	2	1364	910	682	455	341			
1	21/2	1282	855	641	427	321			
1	3	1222	815	611	407	306			

Keystone Steel and Wire Data

#### WATERPROOF CONCRETE

Water-tight concrete may be readily obtained through the use of waterproofed cement now widely available. Also, waterproofing powders may be added in the mix to regular cements. Concrete made with these types of cement should be carefully cured, for once dry, the concrete cannot be wetted for additional curing.

Concrete made with regular port-

land cement is water-tight if properly designed, mixed, and placed. Leakage in concrete structures occurs through minute cracks and at construction joints.

A wide variety of materials is available for preventing and stopping leaks and moisture penetration in concrete. Broadly, these products are either silicones, silicone resins, or asphaltic and mineral gum compounds. When manufacturers' directions are carefully followed for application, usually by brush or spray, the leakage of water and penetration of moisture can be stopped if construction is good.

#### MORTAR FOR MASONRY UNITS

Mortar for bedding masonry units, brick, stone and the like must have several essential characteristics. The material must be plastic and "hang" well to the brick, but must not be too fat, so as to be sticky. Low shrinkage and high strength are necessary; the mortar should also have good yield; that is, it should carry an adequate volume of sand in relation to the cement and/or lime.

The traditional method of making mertar by air-slaking quicklime with water to form a hydrated lime for the cementing agent, has been almost completely supplanted by the use of prepared mortar cements and lime-cement mixtures. Mortar made with commercial cements requires only the addition of sand and water to be mixed and used immediately. Mortar may either be mixed wholly with mortar cement or may have regular portland cement added for additional strength, greater water-resistance when cured, and slightly better handling and setting characteristics. Exact compositions should be based on the type of masonry units used, manufacturers' recommendations and the experience of the contractor and masons.

Mortar sand should be finer than sand used as a fine aggregate in concrete. Particles should be uniform in size sharp and clean. Mortar-mixing is usually with a power mixer which gives uniform mortar, efficiently and economically. The mortar box and hoe are, however, still standard equipment for small masonry jobs such as chimneys, fireplaces, and small brick and stone veneer jobs.

#### Mortar in Use

Proper application of the mortar to the masonry units is as essential as good quality mortar to a strong, durable job. The units should be soaked with water to reduce absorption from the mortar. Full mortar beds and complete filling of spaces at ends of units are essential. In hollow wall construction, the inner faces should be parged to prevent moisture entrance.

#### Nominal Height of Concrete Masonry Walls by Courses

For concrete mosonry units 7%'' and 3%'' in height laid with %'' morter joints. Height is measured from center to center of morter joints.

	Nominal height of co	ncrete masonry walls
No. of	Units 7%" high and %" thick bed joint	Units 3%" high and % thick bad joint
1	8"	4"
2	1' 4"	8"
3	2' 0"	1'0"
4	2' 8"	1' 4"
5	3' 4"	1' 6"
6	4'0"	2' 0"
7	4' 8"	2' 4"
	5' 4"	2' 8"
9.	6'0"	3, 0,
10	6' 8"	3' 4"
15	10' 0"	5'0"
20	13' 4"	6' 8"
25	16' 8"	8' 4"
30	20' 0"	10'0"
35	23' 4"	11' 8"
40	26' 8"	13' 4"
45	30' 0"	15'0"
50	33' 4"	16' 8"

Portland Cement Association Data

# GET THESE ADVANTAGES BY ADDING SOLVAY CALCIUM CHLORIDE TO YOUR CONCRETE

- Cuts setting time in half; permits quicker finishing.
- · Reduces curing period; permits quicker use.
- · Increases both early and ultimate strength.
- Increases rate of flow and workability; permits reduction in water-coment ratio.
- Offsets effects of low temperatures; gives added protection and safety.
- Can be used with regular, air entrained, high early, colored or low heat cement.
- · Reduces volume change and surface wear.

#### SOLVAY Calcium Chloride

√ Cuts Delays
 √ Speeds Operations
 √ Adds Extra Strength

#### Free Book Gives Full Details

"The Effects of Calcium Chloride on Portland Cement" is a 40-page semi-rechnical book that is being offered by Solvay to architects, engineers, contractors, plant operators or anyone else who works with concrete. It is filled with authentic information—including tables, charts, graphs—and answers all your questions about the use of Calcium Chloride in concrete. Included are results of carefully controlled tests conducted in the field, and in the laboratory by leading authorities. For your free copy of "The Effects of Calcium Chloride on Portland Cement," write today on your business

#### SOLVAY SALES DIVISION

Allied Chemical & Dye Corporation

Dept. 34-4, 40 RECTOR STREET, NEW YORK 6, N. Y.

#### **Suggested Concrete Mixes**

		U. S. gallons of water to add to each 1-sack			Trial mixture for first batch			
Kind of Work		batch				Gravel or	Maximum aggregate size,	
	Damp sand	Wet sand	Very wet	Coment, sacks			inches	
Foundation walls which need not be watertight, footings for walls, columns and chimneys, retaining walls, garden walls.	6.1/4	(Average sand) 51/2	4 1/4	1	23/4	4	11/2	
Waterlight basement walls, walls above ground, driveways, walks, floors on ground, basement floors, parch floors, paved terraces, concrete steps.	51/2	(Average sand) 5	4 1/4	1	21/4	* 3	1 to 1 ½	
Suspended reinforced concrete floors of all types, reinforced concrete posts and columns, sills, lintels.	51/2	(Average sand)	41/4	1	21/4	3	2/4	

Portland Cement Association Data

#### How to Select the Proper Mix

Recommended pr	oportion	s of wate	r to cem	ent and	suggester	d trial mi	xes		
	Gallons of water to add to each sack batch if sand is			Suggested mixture for trial batch			Materials per cu. yd. of concrete		
Kinds of work	Very (aver- wet age Damp 1		Ce- ment, sacks	Fine,	egates   Coarse,   cu. ft.		Fine,	Coarse cu. ft	
5-gallon paste for concrete si	ubjected	to severe	wear, w	eather c	or weak	acid and	alkali so	lutions	
One-course industrial, creamery and dairy plant floors, etc.	337	1	115	1	137 M	aximum :	size aggr	regate 3	in. 16
6-gallon paste for concre	te to be	watertigh	t or subj	ected to	modera	te wear a	nd weat	her	
Watertight floors, such as industrial plant, basement, dairy barn; water- tight foundations; driveways, walks, tennis courts, swimming and wading pools, septic tanks, storage tanks, structural beams, columns, slabs, residence floors, etc.	434	5	53/2	1	M 21/4	aximum s	634	14	2 in. 19
7-gallon paste	for conc	rete not s	ubjected	to wear.	, weathe	r, or wate	·r		
Foundation walls, footings, mass con- crete, etc.	434	312	614	1	234 M	aximum s	size aggr J 5	egate 11	½ in. 20

Portland Cement Association Data

#### **Proportions By Volume**

Type of wall	Cement	Hydrated lime or lime putty	Mortar sand in damp, loose condition
Ordinary	1 masonry cement* or 1 portland cement	1 to 114	2 to 3
Subject to ex- tremely heavy loads, violent winds, earth- quakes or severe frost action. Isolated piers	1 masonry cement* plus 1 port- land cement or 1 portland cement	0 to 14	4 to 6

\*Federal Specifications SS-C-181-b Type II.

Portland Cement Association Data

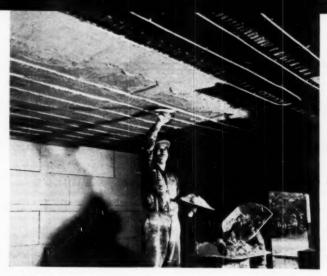
#### Approximate Amounts of Material Required Per Cubic Yard of Concrete

Type of concrete	Sacks of cement	Sand cu.yd.	Gravel cu.yd.	Size of gravel
All concrete 4 in. to 8 in. thick 1:214:3 mix	61/4	35	34	1½ in.
All concrete 2 in. to 4 in. thick 1:21/4:21/4 mix	634	35	%	% in.

requires approximately 6½ sacks of cement, ½ cu.yd. of sand and ¾ cu.yd. of gravel. Then for the 3 cu.yd. of concrete needed for the septic tank one would need:

- $3 \times 6\frac{1}{4}$  sacks cement =  $18\frac{3}{4}$  (19) sacks of cement
- $3 \times \frac{2}{3}$  cu.yd. sand = 2 cu.yd. sand
- $3 \times \frac{3}{4}$  cu.yd. gravel =  $2\frac{1}{4}$  cu.yd. gravel

Portland Cement Association Data



PROPER use and application of plaster bases is important in the construction of strong and durable finished walls and ceilings. A secure bond between the plaster base and the plaster is essential to develop strength and resistance to abuse, bumps, and cracking.

Gypsum plaster adheres to a plaster base because a bond is developed which virtually makes the two materials a solid unit. A "mechanical" bond is formed when plaster is pressed through the mesh or holes of the lath, forming keys on the other side. The keys actually rivet the lath and plaster together. This mechanical bond results when plaster is applied over metal lath or perforated gypsum or fiber insulating lath.

A "suction" bond is formed when gypsum plaster is applied over gypsum lath, sheet fiber insulation lath and masonry bases. In these cases the tiny needle-like crystals of the plaster penetrate into the surface pores of the base material by suction. When the plaster sets, the base material becomes "welded" to the plaster. When perforated gypsum lath is used, both suction and mechanical bonds are developed.

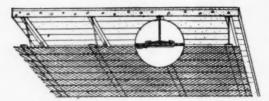
#### PLASTER BASES Metal Lath

According to the Metal Lath Manufacturers Association, there are ten basic features of metal lath which make it effective when used with plaster:

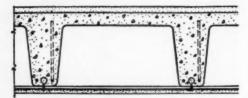
- Impact resistance. This type of construction is said to offer maximum resistance to accidental blows and impacts and destructive forces of all kinds;
- (2) Adaptability. It is easily cut for fitting, easily bent without breaking to follow curves and form strong

angles, and facilitates the plaster enclosure of light fixtures and heating units as well as plumbing and other installations.

- (3) Crack Resistance. The tensile strength of the metal lath resists any tendency the plaster may have to crack when the structure moves or vibrates, as the metal lath forms a continuous two-way reinforcement.
- (4) Rigidity. With as many as 1,000 mechanical keys holding the plaster positively in place per square foot, the entire construction develops a high ability to withstand the ravages of fire, hose stream, earthquake, or explosion.
- (5) Sanitation. Where steel reinforcing combines with plaster to form a hard, crack-free surface, the walls naturally receive a high rating from a sanitary standpoint as they provide little or no hiding place for germs.
- (6) Fire Resistance. Exhaustive tests have demonstrated the high fireresisting qualities of this type of construction, especially in halls and stairwells.
- (7) Sound Control. Acoustical plaster over metal lath absorbs sound waves within a room, and both normal 2-inch solid and 4-inch hollow wall partition systems of ordinary plaster with metal lath have sound insulation values, the latter providing a reduction in sound of up to 55 decibels.
- (8) Light Weight. Light-weight aggregates used with metal lath and gypsum plaster permit great savings without in any way reducing fire resistance or strength of wall.
- (9) Foolproof. Metal lath is attached to supports in a variety of standardized ways so that it is usually easier and faster to apply the



METAL LATH SECURED TO STEEL JOISTS should be secured to the lower chord of steel joists with two strands of 18 gauge tie wire or four strands of 18 gauge wire at intervals of six faches, or with special clips. Free ends of tie wire should have at least three twists for security



METAL LATH ATTACHED TO CONCRETE JOISTS. Hangers for attaching metal lath directly to the underside of concrete ribs approximately 25 inches on center should be placed in forms before concrete is poured. They should be hook, loop or hairpin type, not less than 14 gauge galvanized annealed wire when twisted as in the wire and not less than 10 gauge galvanized wire when struck over to support the lath. Space not more than five inches apart

full thickness of plaster and do a good job, than it is to follow any other practices.

(10) Economy, Numerous economies in construction costs come from ease of handling, ease of installation, versatility, durability, and other qualities.

#### Types of Metal Lath and Accessories

Metal lath is of three basic types: diamond mesh (also called flat-expanded), rib, and sheet. Diamond mesh is metal lath slit and expanded from metal sheets into such a form that there is no rib in the lath. Rib metal lath has either a separately attached stiffening member or an unexpanded portion which leaves the plane of the lath at an angle and returns at the same angle, imparting a certain rigidity. Sheet lath is simply slit or punched from metal sheets, usually galvanized.

Accessories used include a wide variety of small nose and bull-nose corner beads, base screed, concealed picture molding, and metal casings of various sorts. Special channels, hangers, and metal studs are properly considered as framing members rather than lathing accessories.

#### Fiber and Insulation Lath

A number of manufacturers who produce insulating boards, sheathing, and wallboards of a fiber base also manufacture these materials as plaster bases. One fiber insulating plaster base is manufactured in a size 1/2 by 48 inches from wood fibers felted together. It is easily applied to studs or joists not over 16 inches apart. It bonds satisfactorily with gypsum plaster but not with plaster containing vermiculite aggregate. A full 1/2-inch of plaster is required, and it should not be used where the surface will be exposed to excessive moisture or humidity.

This lath should be applied with the long dimension at right angles to the framing members, butted with staggered vertical joints. Regular 1½-inch blued lath nails should be used approximately four inches apart. Center end joints on framing members. Cut accurately to fit lath around electrical fixtures, etc., and reinforce all interior angles with cornerite. Corner bead should be applied to all exterior angles by nailing through to framing.

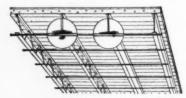
Another type of insulating lath is one which has aluminum foil or other vapor barrier applied to one side by the manufacturer. Such lath is usually gypsum, although fiber lath in some instances has the same type of foil attached.

#### Wire and Paper Combinations

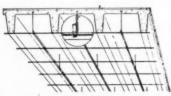
One familiar paper-wire combination is simply standard metal lath with paper backing applied by the manufacturer. Such paper backing frequently has a foil layer which serves as vapor barrier. Other types include coarsely woven wire with paper backing, and wire woven into and around paper strips.

Manufacturers claim for these products the advantages of automatic back-plastering without plaster keys (as all of the reinforcement is embedded in the first coat of plaster), no lath or stud marks, all angles and laps reinforced, instant bonding action due to the fibrous character of the paper used, and ease of handling and cutting.

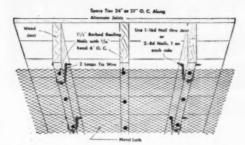
At least one group of plasterers has found that such lath may be plastered by spraying, speeding construction and cutting costs while providing good quality work. First and second coats are sprayed on while finish coat is applied by hand in regular manner. One man operates the spray



FURRED CEILING ON STEEL JOISTS. Furring members should be %-inch cold rolled channels and should be erected at right angles to the joists. They should be securely attached to the bottom chords with 2 strands of 16 gauge or 4 strands of 18 gauge galvanised wire or other approved attachment of equal strength. Metal lath should be attached to furring with wire ties not more than 6 inches apart



FURRED CEILING ON RIB CONCRETE CONSTRUCTION. For concrete ribs centered approximately 25 inches, channel runners should be supported against bottom of ribs by hangers of two 14 gauge galwanized wires or similar strength with loops embedded 2 inches in the concrete. Hangers should be placed before concrete is poured and spaced 36 inches on center to engage 3/4-linch channels running parallel to the ribs. Hangers should be securely saddle-tied or wrapped around the cross channels. Cross furring members should be saddle-tied to channel runners at each intersection



METAL LATH TIED AND NAILED TO WOOD JOISTS (Contact Ceiling). For structures of greater than ordinary vibration, or where normal holding power of nails cannot obtain metal lath should be attached to the wood with 1 1/2-inch No. 11 qauge roofing nails. For tying: 16d common nails are driven in a horizontal position clear through joists 2 inches above bottom edge of joists; metal lath is then secured to these nails by at least 2 strands of 18 gauge tie wire

gun while three work at rodding and darbying. Plasterers like it also because of the saving in physical effort.

#### Gypsum Lath

Gypsum lath made in sheet form in thickness of ½ and ½ inches consists of a core of gypsum pressed and rolled between two layers of special absorptive paper. It not only provides a perfect bond with gypsum plaster but adds bracing to the framing, lowers transmitted noise from room to room and is economical to apply. It is not harmfully affected by decay, dry rot or normal moisture, will not attract vermin, and is of fireproof core as well as being highly resistant to warping or buckling and cracking.

Gypsum lath, 3%-inches thick, is designed for supports not over 16

Flor Slob

Rummer
Channels

Furring
Channels

Metal Latin

SUSPENDED CEILINGS OF METAL LATH BELOW CONCRETE FLAT SLAB CONSTRUCTION. Hangers should be secured to steel reinforcement in concrete with cinder aggregate and may be secured to steel reinforcement or looped or embedded in the concrete with other aggregates. Special inserts to which hangers may later be attacked may be inserted through or attacked to the top of the forms in lieu of anchoring hangers directly in the concrete

bond

Perforated gypsum lath should not be used on ceilings with resilient clips or other side suspension clip systems; its other limitations are the same as those for regular gypsum sheet lath.

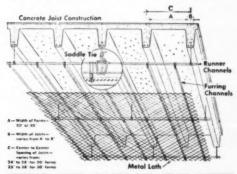
#### Application of Gypsum Lath

For %-inch gypsum lath, use 1½ inch 13 gauge blued smooth diamond point nails; for ½-inch lath use 1½-inch length. For nailable steel framing use nails of proper gauge with not less than %-inch heads and long enough to develop the proper nail holding of the framing. Steel framing should not be over 24 inches on center.

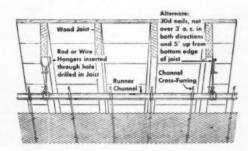
Space nails approximately 1/4inches from the edges and ends, approximately five inches apart, using 4 nails per lath support. For 1/2-inch

ing supports are used, 1/2-inch lath is required, but joists or studs should still be not over 24 inches on center. With 1/2-inch gypsum lath on framing members over 16 inches on center, plastering should be done by the threecoat method. This type of lath should be used with gypsum plaster only, as a bond with lime or portland cement plaster is inadequate. It should not be used in areas exposed to excessive moisture for long periods, and where one-hour fire resistance ratings are required, perforated gypsum lath should be used. The perforated gypsum lath is identical with the standard except that at 4-inch intervals holes approximately 3/4-inches in diameter have been punched through, allowing plaster to key mechanically to the back of the lath, thus providing both mechanical and suction

inches on centers; where wider fram-



SUSPENDED CEILING OF METAL LATH BELOW CONCRETE JOIST CONSTRUCTION. Hangers should be inserted through the centering at the bottom of joists, and should be provided with a loop or other deformation to positively enter the concrete or be secured to the reinforcing steel. In 20-inch wide form construction, hangers should be spaced 48 inches on center longitudinally in alternate rows of concrete joists. In 30-inch form construction hangers should be placed in each row of loists.



SUSPENDED CEILINGS OF METAL LATH BELOW WOOD CON-STRUCTION. Wire hangers may be inserted in holes drilled a minimum of 3 inches above the bottom of joists, or hangers may be attached to 30d nails driven on a downward stant into sides of joists with at least-3-inch penetration into the wood, with the wire of the hanger twisted around the nail at least three times. Each hanger will support a maximum of 16 square feet of ceiling area, hangers to be 4 feet on center and of No. 8 gauge galvanised wire.

# MILCOR A



# Metal Lath

and accessories



#### Smalmesh Metal Lath

A general utility lath. Can be readily bent or formed for furred or ornamental members. Due to the small, rigid mesh a minimum of plaster is required to produce a perfect key.

SMEET SIZE: 27" x 96", packed 10 sheets (20 sq. yds.) per bundle. All sheets squared on both ends.

MATERIALS AND WEIGHTS lib. per sq. yd.l: Copper Alloy Steel, Painted—2.50 lb., 3.40 lb. Galv. Sheet Steel 3.40 lb.



#### Specialmesh Metal Lath

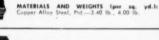
A rib lath for walls and ceilings. Saves plaster; provides excellent bond. Ribs 36" wide; 136" on centers. Cross strands at 14" intervals, reinforced by stiffening members (two between each pair of ribs). Sheets squared on ends. Well suited to "two cout work" or "back plastering." SHEET SIZE: 24" a 96", packed 9 sheets (16 strands of the strands of



#### 3/8" Stay-Rib Metal Lath No. 2

Ideal self-furring lath for wide ceiling spans and for floor reinforcing over steel joists. 34" heavy ribs spaced 4.8" on centers. Five stiffening members between ribs. Connecting strands at 14" intervals. Rigidity of ribs saves labor and material when supports are widely spaced.

SHEET SIZE: 24" x 96", packed 9 sheets [16 sq. yds.) per bundle.





#### 34" Stay-Rib Metal Lath No. 3

Reinforcement for concrete floors and roofs. Serves as a form for wet concrete Adaptable to pitched roofs, saw-tooth and manitor-type roofs. Also for reinforcing concrete base for tile, terrazzo, or composition flooring. Five 34" ribs spaced 6" on centers. Seven stiffening members between ribs.

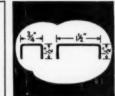
SHEET SIZE: 24" wide, B, 10 and 12 ft. long, 6 sheets to a bundle.



#### Milcor Corner-Ex

Finished edges. Center rib guides Corner-Ex occurately into corner. Design and contour eliminate any projections interfering with plastering. Wired together in sub-bundles of 25 pcs. each. Packed three sub-bundles (75 pcs.—600 ft.) per ctn.

SIZES: 2"x2"x96"; 3"x3"x96". WEIGHTS (No. per 1,000 lin. ft.): 2"—100 lb.; 3"—140 lb.



#### Milcor Cold Rolled Channels

Accurately formed with true right angles; uniform and straight their entire length. Regularly used with metal lath for suspended ceilings, furring and solid and hollow partitions.

SIZES: ½," and 1½," Lengths 16 and 20 ft.
PACKING (per bundle): ½,"—20 pieces; 1½,"—
10 pieces:
WEIGHTS (lb. per 1,000 lin. R.1: ½,"—300
lb. 1½,"—475 lb.
MATERIAL: 16 gauge Steel, Painted.



#### Milcor Solid Partitions and Furring System

Simplifies erection of partitions. Runners have openings for  ${}^34''$  Channel Studs. "L" Type Runner for partitions constructed along beams. Metal Base used by employing clips in place of floor runner.

MATERIAL: 28 Ga. Galv. Steel. Stock lengths:

WEIGHTS (per 1,000 lin. H.): "Z" Type Ceiling Runner—222 lb. "L" Type Boom Runner—374 lb. "Z" Type Floor Runner—136 lb. "PACKING (per cerizen): Ceiling Runner—50 pcs. Floor Runner—100 pcs. Beom Runner—50 pcs.



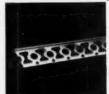
#### Milcor One Piece Steel Stud and Track

LARGE UNIFORM OPENINGS: Spaced 6" on centers. Pre-determined location for conduits or pipe lines.
REINFORCED X-SHAPED MEMBERS:

Short-span, X-shaped framing reinforced by an embossed corrugation. MATERIAL: 16 gauge Steel, Painted.

MATERIAL: 16 gauge Steel, Painted.
LENGTHS: 6, 7, 8, 9, 10, 12, 14, 16, 18 and 20 ft. Intermediate lengths on request.
WEIGHTS IIIb, per 1,000 lim. ft.lt. 3½"—720 lb.; 4"—700 lb.; 6"—880 lb.

BLUNNER TRACKS: Same design as studs. Standard 10 ft. lengths. Punched for attaching to floor. EXTERNAL TYPE STUD SHOES: 20 go, steel. 5 ft. and 7 ft. lengths. 7 ft. shoes used for ceiling attachments when variations in ceiling height call for estra length. Weight 100 lb. per 1,000 pcs.



#### Milcor Arch Bead

Used straight or curved. Snip one or both flanges with tin snips: Bead can then be formed easily into a smooth arc, without kinks or breaks in the nose, by applying slight pressure with the hands. Minimum of metal cutting required

MATERIAL: 26 gauge Sheet Steel, Galv. LENGTHS: 7, 8, 9, 10 and 12 ft. WEIGHT (1b. por 1,000 lin. R.): 175 lb. PACKING (per carren): 7 ft.—80 pcs.; 8 ft.—70 pcs.; 9 ft.—60 pcs.; 10 and 12 ft.—50 pcs.



#### Super-Ex Corner Bead

Combines advantages of Expansion and Solid Wing corner beads. Strong, straight mose reinforced by two solid flange sections, strengthened by corrugations. Integral expansion flange makes excellent plaster bond, simplifies erection.

MATERIAL 26 go. Sheet Steel, Galvanized.

HINGTHS. 78 8 9 10 and 12 dt.

regral exponsion riange makes excellent plaster bond, simplifies erection.

MATRIAL 26 ga. Sheet Steel, Golvanized, LENGTHS: 7, 8, 9, 10 and 12 ft.

WEIGHT IIb. per 1,000 lim. Pt.1: 270 lb.

PACKING (sper current: 7 ft.—80 pcs., 8 ft.—70 pcs.; 9 ft.—60 pcs., 10 and 12 ft.—50 pcs.

INLAND>STEEL PRODUCTS COMPANY

Manufacturers of over 2,500 products for farm, home, and industry.

# MILCOR <



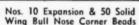
# **Metal Lath**

and accessories

# No. 1 Expansion Corner Bead

Wide expanded metal wing integral with nose of the bead-plaster keys right up to nose; effective plaster reinforcement exactly where needed.

MATERIAL: 26 gauge Sheet Steel, Galv. LENGTHS: 7, 8, 9, 10 and 12 ft. WEIGHT (Ib. per 1,000 lin. H.): 210 lb. PACKING (per corten): 7 ft.—80 pcs.; 8 fpcs.; 9 ft.—60 pcs.; 10 and 12 ft.—50 pcs.



For broad, rounded corners, with extra resistance to damage from moving carts, wheelchairs, etc. Face of bead 1" wide,

radius 34".

MATERIAL: 26 gouge Sheet Steel, Colv.

LENGTHS: 7, 8, 9, 10 and 12 ft.

WEIGHT (1b. per 1,000 lim. ft.): No. 10—340

Ib. No. 50—220 lb.

PACKING (per ctm.): No. 10: 7', 8', 9'—25

pcs., 10', 12'—5 pcs. No. 50: 7'—80 pcs.;

8'—70 pcs.; 9'—60 pcs.; 10', 12'—50 pcs.

8'—70 pcs.; 9'—60 pcs.; 10', 12'—50 pcs.



For extra broad, heavy duty rounded corners. Heavy gauge steel face: No. 8—2" wide, curved to 112" radius; No. 9—214" wide, curved to 2" radius. Expansion wings spot-welded to nose.

MATERIAL: Expansion Wing—26 gs. Sheet Steel, Galv. Nose—16 ga., Galv. Golv. Nose—16 go., Golv. LENGTHS: 7, 8, 9, 10 and 12 ft. WEIGHT (lib. ppr 1,000 libs. No. 8—815 lb. No. 9—860 lb. PACKING (pper carrient): 15 pcs.

No. 4 Expansion Casing Bead

(Also available with short, solid flange-24 go.) For doors, windows and other openings. Applied before plastering. Provides screed to which plasterer can work. Only smooth, quarter round nose of casing bead, ex-posed after plastering. Integral Expansion Wing reinforces plaster. Ridged flange insures tight fit to igmb.

MATERIAL: 24 go. Tight Coat Galv. Steel. LENGTHS: 7 ft. and 10 ft. GROUNDS: 1/2 in. and 2/4 in. WEIGHT (1b. per 1.000 lin. ft. 1: 315 lb. PACKING (per ctn.): 7 ft.—80 pcs.; 10 ft.—

### No. 60 Expansion Casing Bead

(Also evallable with short, solid flange-22 ge.)

Similar to the No. 4 Casing bead except that the face is flat and has a beveled edge. Slight ridge in the nailing flange of Milcor Casing Beads creates a pressure that holds the nose of the casing bead tightly against the jamb.

MATERIAL 24 ag. Tight Coat Galv. Steel LINGTHS: 7 ft, and 10 ft.

GROUNDS: 1/2 in, and 1/4 in. WEIGHT (Ib. per 1,000 lin. #t.1: 250 lb.

PACKING (per cin.): 7 ft .-- 80 pcs.: 10 ft .--









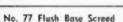


# No. 66 Expansion Casing Bead

(Also available with short, solid flange-22 go.)

Square design with 3/16" return. Expansion Wing feature affords excellent plaster bond and reinforcement; minimizes plaster cracking. Ridge in nailing flange insures tight fit.

Insures tight in.
MATERIAL: 24 go. Tight Coat Galv. Stoel.
LENGTHS: 7 ft. and 10 ft.
GROUNDS: ½, in. and ½, in.
WEIGHT 10b. per 1,000 lin. R.1 260 lb.
PACKING (per ctn.): 7 ft.—80 pcs., 10 ft.—



A strong, straight dividing strip for use between plaster and flush concrete or terrazzo base. Key holes for plaster and cancrete in top and bottom flanges. Made in grounds only.

MATERIAL: 26 gauge Tight Cost Galvanized CENETRES 10 0

WEIGHT (ib. per 1,000 lin. ft.): 150 lb. PACKING (per certen): 50 pcs.



Convenient for removing accumulations of chimney debris. New door catch provides positive lock; prevents door from being blown open. New hinge design permits lesting freedom of operation. Wide flanges on frame simplify installation. Stamped from high grade, 16 ga. copper allay, Fur-nished painted. Size 8" x 8". Pocked six doors per carton-shipping weight: 19 lbs.



For easy access to utility systems without damage to walls. New spring hinge allows opening to 175°. Number of hinges varies with size of door. Doors removable.

STYLES: For plastered walls, Style expansion wing, Style "L" with a Style "M" for non-plastered walls. SIZES: 8" x 8" to 24" x 36". solid Songe.

MATERIALS: Door 14 Ga. steel; housing 16 Ga. steel Gray primer painted.

LOCKS: Flish cam type; number varies with size of door. Cylinder lock with key furnished at extra charge.

FACUING: One per corton

## Milcor Louver Ventilators Fatent Nos. 2,309,717 and 2,340,570

Relief from summer heat; wintertime protection against condensation damage. Made of heavy Galvanized Sheet Steel. Aluminum painted. Welded construction, Generously fitted corners and overlaps, Reinforced louver blades, Carefully framed removable insect screen. No. 100 Seriesself casing style. No. 220—for use with masonry—fits opening left by removal of one concrete block. No. 300 Series—flush type flange. Opening sizes from 8" x 8 30



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BALTIMORE 24, MD. — 5300 Puleski Highway • BUFFALO 11, N. Y. — 64 Repin 5t. • CHICAGO 9, HL. — 4301 S. Western Avenue Bivd. • CINCINNATI 25, OHIO — 3740 Spring Grove Ave. • CLEVELAND 14, OHIO — 1541 E. 39th St. • DITROIT 2, MICH. — 690 Ameterdam Ave. • KANSAS CITY 8, MO. — 5. Western Stote Line • LOS ANGELES 54, CALIF. — 4807 E. 49th St. • NEW YORK 22, N. Y. — 230 Park Ave. • ST. LOUIS 10, MO. — 4215 Clayron Ave.



# a PERFECT Plaster Bond

for glazed tile—concrete—drywall brick—oil base painted interior surfaces.

Nu-Wall receives any conventional plaster finishes.

Above is a section of the glaxed tile wall showing easily applied NU-WALL used as the permanent bonding plaster in the 17-story Fort Worth Notional Bank Building. NU-WALL was roughly trowelsed directly on the fire-proof glaxed tile. A brown cout of one inch. or more. was applied to the NU-WALL and rodded using a perlite aggregate. NU-WALL proved perfect together with great savings in time, money, labor, and eliminated the need for furred mesh or metal lath.

A. E. Ritchey, regional NU-WALL representative, reports—NU-WALL, after many tests, was given the O.K. by all concerned, with a netable savings as well.

General Contractor: Thomas S. Byrne, Inc., Plaster Contractor: J. R. Condron, Architect: Preston M. Geren, all of Fort Worth. Texas:

Consulting Architects: Messrs, Shreve. Lamb & Harmon Associates of New York City, N. Y.

Write Today for Complete Information

# NU-WALL MFG.

923 North 19th Street,

Milwaukee 3, Wisc.

(Continued from page 499)

lath on supports over 16 inches on center use 5 nails per support, 4 inches apart. For one-hour fire rating when using sand as an aggregate, use 5 nails per support plus strip lath on joints.

Gypsum lath should always be applied face out with the long dimension at right angles to framing members. On walls, end joints should be made to fall on different supports in alternate courses. On ceilings, end joints are staggered as for side walls. All joints should be butted together.

All inside corners should be reinforced with cornerite. Staple or nail cornerite to retain position until secured by the plaster. Apply corner bead to all exterior corners by nailing through to the framing.

# Masonry Plaster Bases

Gypsum partition tile, a precast gypsum tile for building non-load-bearing fireproof partitions, has a strong natural bond with base coat plaster. Three inch hollow gypsum tile plastered on two sides has a 3-hour fire rating, and the 4-inch tile a 4-hour rating. It should not be used for load-bearing partitions, nor with portland cement or lime plasters. Do not use as a base or starter course where there will be excessive moisture.

Clay tile, usually 12 by 12 inches and from two to six inches thick, with scored faces, serves as a good plaster base, as does concrete block with a rough porous face. Concrete block must be cured to minimize volume changes during and after plastering. Portland cement lime sand mortar is generally used for laying up these load-bearing partitions. Gypsum plaster may be applied directly to these constructions providing the surface is porous to develop proper suction or scored to develop adequate mechanical bond.

#### BASE COAT PLASTERS

#### Gypsum Cement Base Coat Plasters

Gypsum base coat plasters are relatively uniform; setting time is stabilized, and hazards due to job conditions and variables in water and aggregates is minimized. Controlled set assures maximum hardness and tensile strength. "Neat" plasters constitute the bulk of tonnage of all types of gypsum plasters used. Gypsum is incombustible, will not transmit high temperatures until completely calcined, actually fights fire by retarding flame.

Aggregates must be added strictly according to specifications. Use of too much aggregate reduces the strength of the plaster slab. "Neat" gypsum plasters, sanded, or wood fiber plasters should never be applied to concrete.

Bituminous compounds do not provide a good base for gypsum plaster base coats. Do not apply such plasters to masonry walls that have been treated with these compounds. Because of possible moisture seepage or condensation, do not plaster directly to the inside of exterior masonry walls. Such walls should be furred. If used in conjunction with radiant heating systems, the temperature at the surface of the plaster should not exceed 115° F., nor should the water in the pipes exceed 125° F.

#### Sanded Plasters

This material is the same as neat gypsum plaster except that a properly graded sand has been added at the mill in the proper amount for best plastering results. This is particularly suited to areas where good plastering sand is not readily available; it avoids the possibility of oversanding or improper gradation of the aggregate, thus assuring proper strength for the plaster. It also eliminates the problem of frozen sand in winter.

### Wood Fiber Plaster

This type of plaster contains a finely shredded wood fiber and is made primarily for use with addition of water on the job. In some cases, a small amount of sand, never more than one part by weight, is added on the job. This addition of sand is said by manufacturers to minimize shrinkage cracks. This type of plaster is recommended for use where excessive strength, toughness, or a higher fire rating is required. It has three times the compressive and tensile strength of plaster sanded 1:3, approximately 50 per cent greater surface hardness, and 50 to 100 per cent greater fire rating than plasters containing sand. It is also desirable for patch and repair work.

#### Concrete Bonding Gypsum Plaster

This is a specially formulated gypsum base coat requiring only the addition of water on the job. It is the only recommended type of gypsum plaster for direct application to properly prepared and roughened concrete surfaces. Unlike ordinary gypsum plaster, this type has the same thermal expansion as concrete, which

PLASTER	GYPSUM LATH	GYPSUM INSULATING LATH	PAINTED METAL LATH	WOOD	GYPSUM TILE	BRICK AND CLAY TILE CINDER BLOLK	CONCRETE	BAGS, TYPE WEIGHT
Gypsum ** Neat Plaster	225-240 Sanded 1:2	225-240 Sanded 1:2	105-135 Sended 1:2	180-210 Sanded 1:2	235-255 Sended 1:3	165-200 Sanded 1:3	Use Concrete Bonding Pl.	Paper 100 Lbs
Sended	75-80	75-80	35-45	60-70	45-55	45-55	Use Concrete Bonding Pl.	Puper 100 Lbs
Wood Fibered	115-120 Water only no sand	115-120 Water only no sand	55-65 Water only no sand	90-100 Water only no sand			Use-Concrete Bonding Pl.	Paper 100 Lbs
Concrete Bonding		90 to 120	square yards des	sending on sme	othness of co	nrete surface		Paper 100 Lbs
Gauging Plaster		1	600 square yare	fs with 2 tons o	f hydrated li	me		Paper 100 Lbs
Prepared Sandfloat Finish			250	-275 square ya	rds			Paper 100 Lbs
Prepared Trowel Finish				-400 square ye				Paper 100 Lbs
Keene's Cement			400	-500 square ya	reis			Paper 100 Lb

makes possible a continuous bond to concrete surfaces. This plaster should only be used on rough concrete that is properly prepared. It should never be applied to smooth concrete. Maximum thickness including finish coat should not exceed \( \frac{3}{2} \)-inch on ceilings and \( \frac{3}{2} \)-inch on walls. If additional thickness is required, metal lath must be properly secured to the rough surface before plastering.

Monolithic concrete surfaces should be brushed clean of all dust, loose particles and foreign matter. Any laitance or efflorescence should be removed by washing with 10 per cent solution of muriatic acid and water. Grease or form oil should be removed with naphtha spirits. If surfaces are not rough enough to provide necessary mechanical bond, they should be hacked or bush-hammered, or a cash coat of Portland cement grout composed of 1 part of cement and 11/2 parts of fine sand, mixed to a mushy consistency, may be applied. Keep this coat damp for at least two days immediately following application and then allow to dry. Before applying plaster, the surface should be evenly dampened to aid proper suc-

#### Portland Cement Base Coat Plaster

Portland cement, with the addition of lime to provide working qualities and water resistance, is frequently mixed with sand and water to form a plaster mortar. It is chiefly used as a base coat for exterior stucco and in places subject to excessive moisture, such as swimming pools, showers, and steam rooms. It is also used where an extra hard base coat is de-

sirable and as a back-up material for ceramic tile.

Such plaster is relatively unplastic and hard to apply, is consequently costly. It must be kept damp to assure proper cure and prevent drying out and cracking. Several days' delay between coats is necessary to insure curing.

### FINISH PLASTERS

Finish coat plasters applied to base coats provide the surface for final wall or ceiling decoration. They are either factory-prepared, requiring only the addition of water on the job, or they may be job-mixed by blending lime-putty and gauging plaster or lime putty and Keene's Cement.



They are normally applied in thicknesses of 1/16 to ½ inch. They are selected by the builder according to job requirements—texture, color, hardness, sound absorption and type of basecoat used.

## White Coat

Finish lime putty into which is blended gauging plaster (gypsum) is known as "white coat." This is the most widely used finish coat because of its good working qualities, whiteness, economy, and ability to take any form of decoration. Usually it is troweled to a smooth, hard finish over a gypsum base coat. With the addition of sand, it is suitable for sand-float finishes.

Finishing limes are of three types—quicklime, normal hydrated lime, and double hydrate. Each requires specific handling in slaking or soaking to produce a good finishing lime

Gauging plasters are carefully ground and screened to just the right sizes of particles to make this plaster quick soaking and easy to blend with lime putty. They are available in either "slow set" or "quick set" types, making it possible for the workman to use whatever material best suits him. Both white and gray gauging are available in both the slow and quick set types.

Gauging plaster is added to the lime putty in proportion of one part of dry gauging to not more than three parts of lime putty by volume, or one part of dry gauging to not more than two parts of dry hydrated lime by weight. After the gauging plaster is sifted into the lime putty ring and allowed to soak for a few minutes, the materials are thoroughly blended to avoid gauging streaks and to provide uniform density in the finish coat.

# Keene's Cement

Keene's Cement is a high strength, white gypsum plaster used with finish lime putty for extremely hard, dense surfaces. The material is slow-setting, can be retempered, and requires more troweling than normal gypsum plaster,

It is used for imitation tile finishes in bathrooms and kitchens or other spots where walls will be subjected to unusual abuse. It is also used as a finish coat for runs and moldings, backing up artificial marble, facing artificial marble, and other ornamental plaster effects.

Keene's Cement is similar in many respects to a lime-gauging plaster, and should be used wherever greater resistance to moisture, greater surface hardness and greater resistance to abrasion are desired. For medium hard finish, mix in proportions of 50 lbs. of dry hydrated lime (100 lbs. lime putty) to 100 lbs. Keene's Cement.

#### Prepared Trowel Finishing Plaster

This is mill prepared and requires only the addition of water on the job. It is recommended for use over gypsum base coats where extreme hardness and immediate decoration are required. Rated the hardest of all finish plasters, it provides protection against the most severe wear. It has roughly twice the strength of ordinary lime-gauging finishes. Non-alkaline, it will not injure paint or decoration, and may be decorated as soon as it has set and dried.

For application, allow to soak for 10 or 15 minutes and then mix to a smooth, lumpfree mortar of desired consistency. Apply over a gypsum base coat which has set but is not bone dry. If the base coat has dried out, spray lightly before finish coat is applied. Scratch in thoroughly, double back and fill out to true, even surface. Finish should not exceed '\( \frac{1}{2} \)-inch thickness. Trowel the surfaces free of blemishes, using water sparingly. Troweling must be complete before final set occurs. Work from unset edges to avoid joining marks.

## Sand-Float Finishes

These are also mill-prepared gypsum finishes, with the addition of fine sand, for use over gypsum base coats. They are used where the semi-rough surface of a sand-float is desired. As the name implies, this material is "floated," not trowel-finished. It comes in its natural gray color, which requires painting or other final decoration. The final coat is finished with a wood, carpet, cork, rubber, or other float depending upon the finish desired.

# Colored Finish Plasters

Colored gypsum finish plasters are frequently used to produce a predecorated finish of either a floated or textured surface. Use of colored gypsum plasters eliminates the need for further decoration. This speeds the plastering job and results in lower costs.

Colored gypsum plasters are available in either factory-prepared colors or can be produced on the job by the addition of pigments to the mix. The lime-proof color should be thoroughly blended and mixed with the plaster to prevent streaking and color varia-

tions. It is also necessary to mix jobprepared colors in sufficient quantities to complete a job to eliminate the color variations which would otherwise occur.

### Acoustical Plasters

Acoustical plasters are highly sound-absorbent, paintable, and are applied easily over a properly prepared gypsum base coat. Manufactured only in an oyster white color, the finish may be either stippled or stipple-perforated. Applied in two successive coats 16 to 24 hours apart, it eliminates re-scaffolding and saves labor. Mixing and applying directions must be adhered to rigidly.

## AGGREGATES

Aggregates in the form of sand and, more recently, perlite and vermiculite—are added to gypsum cement plasters to extend coverage and reduce cost. They also act as a gauging agent to minimize shrinking of gypsum in setting.

### Vermiculite

This material is mined as mica rock, ground and expanded under heat to lightweight granules for use as a plaster aggregate. It should weigh between 7½ and 10 pounds per cubic foot and comply in gradation with ASTM specification for sand. Walls plastered with gypsum plaster containing vermiculite as an aggregate have lower strength and require a longer period for drying than walls of sanded plaster, but are lighter in weight and have greater fire resistance.

Where hard finish coats such as keene's Cement are to be used, reduce the proportion of vermiculite to gypsum plaster in the base coat. Vermiculite is proportioned with gypsum plaster on a volume of aggregate to weight basis.

### Perlite

Perlite is a relatively new lightweight plaster aggregate derived from a volcanic rock. The perlite ore is ground and screened to proper size, then expanded to produce a light gray or white colored aggregate. Perlite aggregate for plastering should weigh between 71/2 and 15 pounds per cubic foot, and should meet ASTM C35-39 gradation requirements except that the minimum percentage retained on a No. 100 sieve shall be reduced from 95 to 90 per cent. It has excellent fire-resisting qualities and when mixed with gypsum plaster produces a higher strength wall than does vermiculite.

STRUCTURAL clay products are the oldest manufactured building products in existence. The versatility of these products has kept them prominent in construction throughout the centuries. Brick and tile, in their convenient and adaptable sizes, have fitted into every building innovation.

Generally speaking, a structural clay product is a piece of clay which has been cleaned, screened, dried, and burned with intense heat. This treatment gives the unit the strength not only to support its own weight in a wall, but also to support heavy additional loads of roofs, joists, and floors.

## Types of Structural Clay Products

There are three general types of structural clay masonry units: solid masonry units, hollow masonry units, and architectural terra cotta.

# Solid Masonry Units

Solid masonry units are those whose volume of cores, cells, or hollow spaces does not exceed 25 per cent of the total for the unit. Brick is included in this classification, and most solid masonry units produced commercially are marketed as a type of brick. Brick falls into two general groups-building brick and facing brick. Building brick (or common brick) is used primarily as a structural material where appearance is not a factor. Facing brick is used both as a structural material and for decorative purposes, where color, texture, and freedom from defects which would detract from appearance must be considered.

Building brick is graded by Specification 62 of the American Society for Testing Materials, which covers three grades based on resistance to weathering. Facing brick is graded by ASTM Specification 216. This specification covers two grades of brick based on resistance to weathering and three types of brick based on factors affecting the appearance of the finished wall.

#### Hollow Masonry Units

Hollow masonry units are those whose volume of cores, cells, or hollow spaces exceeds 25 per cent of the total volume of the unit. Structural clay tile is included in this classification, and covers such types as load-bearing tile, non-load-bearing tile, facing tile, floor tile and others.

Load-bearing tile is used in walls designed to carry superimposed loads and is graded by ASTM Specification C34, which covers two grades based on resistance to weathering. Non-load-bearing tile is used in walls which support only their own weight, such as interior partitions carrying no superimposed load. Nonload-bearing tile is covered by ASTM Specification C56, which includes only one grade, since such units are intended for use where they will not be subject to weathering.

Facing tile may be either in loadbearing or non-load-bearing units designed to be left exposed where surface appearance is of great importance. Therefore, this tile must combine physical properties such as strength and durability with appearance characteristics such as color, texture, small dimensional variations and freedom from surface defects which would detract from the appearance of the finished wall. Facing tile finishes include ceramic color glaze, ceramic clear glaze, salt glaze, and unglazed, the last available in both smooth and rough textured surfaces.

Structural clay facing tile is graded by two specifications, those of the Facing Tile Institute and by ASTM Specification C212. These tiles are produced in two general types—side construction tile designed to be laid with cells in a horizontal position, and end-construction tile designed to be laid with cells in a vertical position.

#### Architectural Terra Cotta

Architectural terra cotta is a custom-made product and is hand made by molding or pressing, and also made by machine. The latter type, shaped by extruding the plastic clay through a die, is often referred to as ceramic veneer, and is available in large sizes up to 48 inches in one dimension. Terra cotta is used extensively in veneering and ornamentation and is available in an almost unlimited variety of colors, both glazed and unglazed.

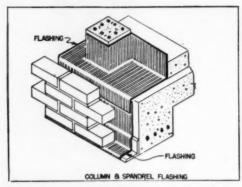
# Use the Proper Mortar For Structural Masonry

In selecting mortar, evaluate its properties in terms of the situation where it will be used. Properties to be considered include: workability and water retentivity, bond, durability, strength, volume change, and efflorescence. Desirable mortar properties may be found in mortars consisting of a wide variety of ingredients.

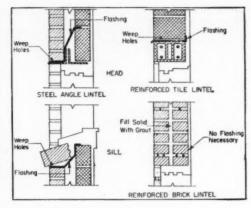
### Recommended Mortars

TYPE A: one part of portland cement, ¼-part hydrated lime or lime putty, and not more than three parts sand by volume. This is a high strength mortar suitable for general use and recommended specifically for reinforced brick or tile masonry and





SPANDRELS in skeleton-framed structures should be flashed continuously at beams except when cavity curtain walls are used. In conventional curtain wall construction, flashing should start under exterior facing wythe, extend upward behind facing and over top of spandrel beam, and be turned up 1-inch at face of wall



UNLESS SILLS are made of impervious material, in one piece, through flashing should be placed under and behind them

plain masonry below grade and in contact with earth.

TYPE B: one part of portland cement, one part hydrated lime or lime putty, and not more than six parts sand by volume. Type B mortar is a medium strength mortar suitable for general use in exposed masonry above grade and recommended specifically for parapet walls, chimneys, exterior walls subjected to severe exposures, and also for load-bearing structural clay tile construction.

TYPE C: one part of portland ecment, two parts hydrated lime or lime putty, and not more than six parts sand by volume. This is a low strength mortar suitable for non-loadbearing walls of solid masonry units, for interior non-load-bearing partitions of structural clay tile, and for load-bearing walls of solid units in which the loads developed do not exceed 100 psi and where exposures are not severe.

# Structural Clay Masonry Walls Types and Uses

Structural clay masonry walls are usually classified according to types of construction, such as solid masonry walls, hollow walls, cavity walls, faced or composite walls, or veneered walls.

# Solid Masonry Walls

These consist of masonry units laid with the joints between units filled with mortar. They may be built either of solid or hollow masonry units in any required thickness for load-bearing or non-load-bearing construction. Solid brick walls are one of the oldest types of masonry construction known to man. Such walls are highly fire-resistant and are

capable of carrying extremely heavy loads—both compressive and lateral.

Hollow Masonry Walls

Hollow masonry walls are built of masonry units so arranged as to provide air spaces in the wall, and in which the facing and backing are bonded together with masonry units. Such walls are usually constructed with solid units, although hollow masonry units may be used. So-called "Rolok-bak" and "All-Rolok" walls are examples. Their advantages are that they are relatively light weight, highly fire-resistant, and yet present much the same exterior appearance as do solid masonry walls.

## Cavity Walls

Cavity walls are built of either solid or hollow masonry units arranged to provide a continuous air space within the wall. This air space should not be less than two inches nor more than three inches in width. The facing and backing are tied together with rigid corrosion-resistant metal ties. The continuous cavity reduces the heat transmission of the wall below that of solid masonry walls and provides an effective barrier against moisture penetration. This type of wall is becoming increasingly popular in residential, light commercial, and frame building construction, particularly in areas where resistance to rain penetration is a severe problem.

#### Faced or Composite Walls

Faced or composite walls are walls in which the masonry facing and backing is of two different types, but bonded so as to exert common action under a load. In other words, the facing material is considered as part of the structural wall in determining the wall thickness. This is perhaps the most common type of wall construction in use at the present time. It is usually built with the exterior facing of brick and the backup of hollow masonry units.

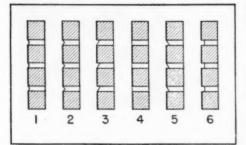
#### Veneered Walls

Veneered walls are walls having a masonry facing which is attached to the backing but not so bonded as to exert common action under loads. The facing in veneered walls is not considered as being part of the structural walls. Masonry veneering may be brick, facing the architectural terra cotta. Masonry veneer may be attached to walls of masonry, reinforced concrete, or to frame construction.

#### Tile Partitions

In addition to exterior walls, structural clay products are also used extensively for interior load-bearing and interior non-load-bearing partitions. In addition to their fire-resistant qualities, non-load-bearing partitions of structural clay tile are light, strong, durable, and economical to creet. Partition tile, unless otherwise specified, is furnished with a plaster base finish which may be smooth, scored, combed, or wire cut. The finish will be in accordance with the manufacturer's standard.

Partition tile is available in thicknesses from 4 to 12 inches. Nominal face dimensions are 12 by 12 inches. It is not generally practicable to use 2-inch tile for partitions except for closets, shafts and similar locations, provided these do not exceed a height of nine feet and an unsupported length of six feet. Partitions of 3-inch thickness can safely be used up to 12 feet in height, and corresponding



TOOLED JOINTS shown 1 and 2 above, produce best resistance to water penetration. No. 3 is "weathered joint" and is satisfactory. No. 4 is the "flush" or "plain cut" joint and is not so desirable. Nos. 5 and 6 are not recommended

Weep Holes & Domp Check & Termite Shield Grade

ALL FLASHING should be drained to outside. One method is by "weep holes" 2 feet O. C. in mortar joint where flashing is placed

increases in permissible height can be obtained with greater thicknesses,

Double partition walls are used extensively where it is necessary to provide space for soil pipes and other utilities. In such cases, the partition walls are constructed with a 4-inch cavity.

#### Facing Tile Partitions

Structural clay facing tile is used widely in interior partitions or as load-bearing exposed facing material to back up exterior walls. While smooth or textured unglazed facing tile is used in both exterior and interior work, glazed units are used primarily for interiors where color, sanitary finishes, and low maintenance are required. Facing tile manufacturers produce standard fittings and special shapes to meet the requirements of practically all job conditions.

Most of the high-grade, lightburning fire clay facing tile units are turnished in the nominal 4-inch thickness, while the nominal 2-inch thicknesses are used principally for lining or veneering. However, the furring units are particularly adaptable for jobs located at great distances from the plant, where it is usually more economical to use local backing materials rather than facing tile in the full load-bearing capacity as a portion of the structural wall as ordinarily recommended.

### Structural Clay Specialties

Manufacturers of structural clay products have also turned their ingenuity to the production of a number of special purpose clay products including flue liners, clay conduit, copings and roof tile, clay pipe, chimpey tops, and shingle-like roofing tile. Applications for and installation of these materials have been clearly detailed by manufacturers so that their use is generally fully as satisfactory

as that of other structural clay products.

## How To Use Flashing

There are two general types of flashing used with structural clay masonry, external and internal. Both types are usually formed of sheet netal or of bituminous membrane materials or combinations of both. Because of its high relative permanence, 16 to 20 ounce sheet copper is usually preferred for the best work, although lead, zinc, and aluminum are suitable if they are protected from corrosion with a coating of bituminous material or lacquer.

External flashing is used to prevent the absorption of water which accumulates on relatively flat intersecting surfaces. This type of flashing usually consists of two members—the base, which forms a part of the covering of a flat surface and turns up against the intersecting vertical surface; and the cap, which is built onto the vertical surface and furns down over the base.

Internal flashing is built into and usually concealed within the masonry to control the travel of moisture and direct it to the exterior surface of the structure.

Where to use either internal or external flashing depends upon where points vulnerable to moisture appear in the structure. Damp checks should be placed about six inches above grade to prevent moisture absorbed from the ground by exterior foundations from traveling upward by capillary action into the wall above. If a termite shield is required to protect floor joists, the damp check can serve as the shield, and should project past the inside face of the wall at least two inches and be bent down at an angle.

Through flashing should be placed under and behind both masonry and wood sills. Ends of sill-flashing should extend beyond the jamb line on both sides and be turned up at least one inch into the wall. The ends of flashing under cast stone sills should be turned up the full height of the sill.

For steel lintels, flashing should be placed under and behind the facing material and over the top of the angle. The outer edge of the flashing should be bent down over the edge of



DECORATIVE ceramic tile offers opportunities for unusual and beautiful design along with advantages of easy maintenance and cleaning in kitchens, bath and utility rooms



HERE is good workmanship. Bed joint is spread to uniform thickness. Mortar is only slightly furrowed. Head joints are completely filled by buttering end of brick before showing into place. Slushing partly filled head joints does not do the job!

the steel angle to form a drip. For reinforced tile lintels, the flashing is placed above the lintel.

Spandrels in skeleton-framed structures should be flashed continuously at the beams except when cavity curtain walls are used. In conventional curtain wall construction, flashing should start under the exterior facing wythe, extend upward behind the facing and over the top of the spandrel beam (which is usually the rough floor level) and be turned up one inch at the inside face of the wall. Where columns occur above the beam, flashing should be turned up about six inches around the columns, allowing 1/4-inch clearance between column and flashing, with tight bottom joints and the top sealed with mastic.

#### Efflorescence Can Be Prevented

Efflorescence is an indication of excess moisture present in the wall, and if permitted to collect, may eventually contribute to the deterioration of the masonry. There are two general conditions necessary to produce efflorescence, which is recognized by a white, powdery substance

that often appears on the surface of walls: (1) soluble salts present in the materials used to construct the wall; (2) moisture in sufficient quantities to carry these salts to the surface.

Though tests prove that 90 per cent or so of all structural clay products are free from soluble salts in sufficient quantities to cause efflorescence, the safest procedure is to keep moisture out of masonry by the best construction methods possible.

If efflorescence is discovered, the first procedure is to examine the structure for possible places where moisture has access to the masonry. Often, defective flashings or the lack of flashings at vulnerable points, defective gutters or downspouts, faulty copings, or improperly filled mortar joints cause wet walls and contribute to efflorescence. The appearance of efflorescence under windows is evidence that sills or caulking around the window frame may be defective. A single patch of efflorescence on a wall, with no apparent relation to anything else, may mean a defective mortar joint or a projecting course of masonry forming a water table.

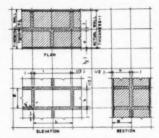
To remove the white powdery efflorescence, after the walls have been made watertight with good flashing installations, a stiff scrub-



PARGING between brick and backing offers high resistance to water penetration

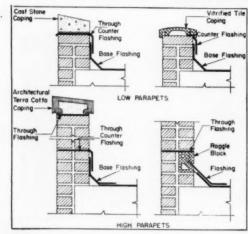


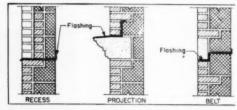
POOR WORKMANSHIP—likely to leak. Deeply furrowed bed joints and only partly filled head joints with no mortar in vertical or collar joints allows water to seep in and damage structure



NOMINAL DIMENSION of masonry unit is equal to standard dimension plus thickness of mortar joint, as shown above. If nominal length of unit is 12 inches, actual length would be 11½ inches if unit is laid with ½-inch mortar joint

bing brush with plain water can be used. Sometimes the efflorescence will disappear after several rains. If neither rain nor plain water removes it, the wall should be well wetted and then scrubbed with water containing not more than one part of muriatic acid to nine parts of water. All frames, trim, and other wood should be protected from contact with the acid solution.





PROJECTIONS and recesses from exposed face of a wall tend to hold rain water and snow. Recommended flashing is shown above

NOTE: For additional information on mortar, see Section 20, Cement, Concrete, Mortar, and Related Products; for detailed studies of masonry operations in cold weather, see American Builder for May and for October, 1951.

ROOF FLASHING occurs at highly vulnerable places from a standpoint of watertightness, should be installed with care as shown at left



IN SAVING LABOR AND COSTS, modern equipment does much for the builder. Power shovel and truck dig and move earth quickly and efficiently

IN ORDER to compete successfully in today's market and meet rising costs, the builder must make the most of the labor-saving and money-saving potentialities of modern power equipment and machinery. Costs may be reduced by mass handling of materials, mass production design, fabrication and assembly, and multiple-unit rather than one-at-a-time building operations. Most cost-reducing techniques are possible only with modern machinery—for instance, the precutting of wood structural members, packaging them, and delivering the unit quantities to each job site.

In many instances, special equipment has been designed and built to make particular cost-reducing techniques possible. The economy of mixing concrete at a centralized point for delivery to various jobs throughout a service area prompted the design and development of "transit mix" concrete carriers and mixers mounted on truck bodies. Straddle carriers, fork lifts, and many other equipment mits are representative of machines specially built to reduce costs and provide greater efficiency.

The increased speed of present-day building operations is made possible by the use of power equipment and tools. Foundations are dug in hours instead of days. Ready-mixed concrete lets the builder pour as much as can be framed. Power buggies, hoists, and elevators speed materials handling.

# POWER SUPPLY EQUIPMENT

Power supply equipment — engines, compressors, generators, and other units which furnish power to operate other tools — is essential to the builder operating in sections away from existing power lines.

Many equipment units such as mixers, hoists, vibrators and the like are operated by built-in gasoline engines. Separate gasoline and Diesel engines which may be used to supply power to various units as needed will find use in many locations. Saws, light mixers, generators, and other tools which do not have built-in engines may be efficiently powered by a separate engine.

The recent development of the small, light, air-cooled, one- or two-cylinder gasoline engine has opened up new applications of this source of power. It frees vibrators, surfacers, flexible shafts, and other tools from the expense of running wiring. Operation is reliable and simple, and repairs are easily made on the job. In sizes from ½ up to six or eight h.p., this type of engine does many jobs at low cost.

Four and six cylinder gasoline and Diesel engines are the general "work horses" of the builder. Compressors, saws, hoists and cranes will use this type of power. The gasoline engine gives high horsepower for its weight, while the Diesel may be preferred for less temporary locations because of its lower operating cost.

Portable electric generators permit the operation of all types of electric tools away from power lines. Sizes run all the way from 500 or 1000 watts up to heavy-duty 10 to 50 KW units for complete lighting and powering of large projects. Generators may be used to power radial saws, drills, and other power tools, and are easily moved around as needed. In many instances, it is cheaper to provide a separate generator than to incur the expense of having the power company provide service, and then run wiring around the job. By making electric power available anywhere, when it is needed without delay, the portable generator saves the builder time and cuts costs.





PORTABLE ELECTRIC GENERATORS provide power for saws, drills, and other tools on the job. Unit shown can be carried by one man, is spring mounted to reduce vibration

The familiar air compressor powers the jackhammer for breaking out concrete, opening up pavements, digging in hard or frozen ground. Many other tools may be used when compressed air is available—caulking and chipping hammers, nut runners, and, of course, spraying equipment. Compressors are made in many sizes and include large units capable of handling many jackhammers at one time, two-wheel trailer-mounted types for one gun or hammer, and portable electric motor-operated models for spray work.

Transformers are a power supply equipment unit that may be required by the builder who must provide 110-volt current from lines having 220 or 440 volts; occasionally, a transformer will be needed to operate a 220-volt motor from 110 volt lines. If this is done, precautions should be taken against overloading the existing wiring.

# SITE-PREPARATION EQUIPMENT

The vast array of site-preparing equipment—bulldozers, graders, shovels, trenchers—offered to builders



TRAILER-MOUNTED COMPRESSORS are readily moved from job to job. The portable unit above will operate chipping hammers, spray guns, and light paving breakers

is one of the outstanding examples of the creative ability and engineering skill of equipment manufacturers. No matter what the problem of earth digging, moving, or handling, there is a machine that will do it quickly and cheaply.

The basic unit around which many types of earth-moving equipment are built, is the crawler tractor, either gasoline or Diesel powered. Forty to 175 h.p. ranges give ample power. With the addition of a front-mounted blade, the unit becomes the bulldozer, most efficient in clearing underbrush, small trees, and in leveling ground preliminary to construction. The same machine returns to the job site to do final grading work.

A scoop bucket mounted at the front of the tractor gives the front-loader or "high lift." This versatile combination will dig shallow foundations, either carrying the spoil to the side for later use as back-fill, or loading it into trucks for removal. It can also be a versatile materials handler. Aggregates, common brick. cement, roofing materials and other bulky products are picked up, lifted, moved, and dumped quickly and cheaply. The front-loader tractor can work in limited space, and turn around in its own length. An idea of the usefulness of these machines may be seen in the experience of one contractor who used his high-lift 4,000 hours in one year-double the normal year's working time.

Large-scale housing projects may often require moving of great quantities of earth for grading and leveling. The scraper earth-mover, mounted on rubber tires and drawn by a tractor, both digs the dirt and hauls it away. Two- and four-wheel models match the power capacities of the tractors and the job requirements.

The power shovel digs foundations, trenches for sewer and water piping, loads the dirt for removal or back-fills, and doubles as a bulldozer. crane, and tractor. Typical sizes used in building construction have 1/2-vd. and 34-yd. capacities. Larger sizes up to three-yard capacities may be used in heavy construction excavating. The "back hoe" type of bucket is now most generally used for foundation work. Clamshell buckets may be used or a crane boom may be mounted so that the same unit may do many different types of work at varying stages of construction.

The power shovel is generally mounted on crawler-type tractor treads. However, truck-mounted units are becoming popular because of the speed with which they may be moved from one job to another. Stability for truck shovels and cranes is

attained with outriggers which are swung out or extended and supported by jacks, taking the strain off the truck tires. A variation on the usual drum and winch style of operation is the hydraulic type in which digging, lifting and dumping are actuated by hydraulic cylinders.

The long wheelbase grader is most commonly thought of as a road builder's tool. However, the contractor who undertakes large-scale housing developments finds use for these not only for road construction and maintenance but also for general grading and leveling of ground.

Many different types of machines are available for trenching and footing digging. Caterpillar treads or rubber-tired wheels permit use in all types of ground, Different widths of blades and shapes of digging points handle soft or hard soils, rocky or frozen ground. Digging attachments are available for jeeps, tractors, and crawler-type machines. Self-contained and powered machines may dig either from the end or side. Special pipetrenching machines also may have a boom for lowering the pipe into the ground as the trenching progresses. Earth-boring machinery for digging test holes, footings, and shallow wells is made both as attachments for machines and as self-operating units.

Rollers and tampers for final grading of the site after construction is completed may be required in largescale work. They may also be needed for site preparation of loose soils for slab floors in ranch-type houses.

# CONCRETE EQUIPMENT

The increasing use of concrete and cement products in the building industry and the advances in concrete technology have been accompanied by an equally rapid development of machinery and equipment for mixing, handling, and finishing concrete and cement.

Concrete mixers range in size from three cubic feet up. One- or two-bag models are most popular with builders of small homes, although smaller mixers may be used for footings or other small pours such as sidewalks.

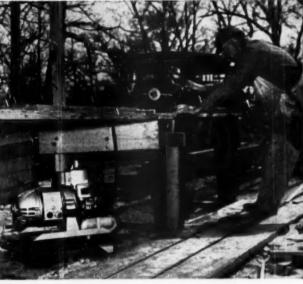
Modern mixers for the small home builder include many refinements and improvements. Roller bearings contribute to longer life. Power-loading hoppers eliminate wheeling barrows up ramps, and make for faster operation. Better gasoline engines minimize delays from power plant failure. Rubber tires make moving from job to job easier.

Special types of mixers are made for paving work, having a traveling discharge bucket on an extended

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There's no doubt about it, long electric cables eat up valuable power ... which is bad for you and bad for your tools. This loss of power results in loss of tool efficiency . . . loss in production per hour. It puts a strain on the tool's motor; causes quicker dulling of a tool's cutting edge. It results in more down-time for costly repairs to tools.

You can eliminate this expensive waste by operating your tools with a Homelite Carryable Generator. Without delay, without trouble you can set your Homelite right where your tools are operating. No long cables will be necessary. You will get the power you need to run your cost-cutting electric tools at peak efficiency, at all times. Write for free demonstration.



boom. Another type of mixer is the transit mix unit, a rotating drum carrier mounted on trucks for transporting concrete from a central mixing plant directly to the job. Transit mixing and carrying equipment saves the contractor time and money. A centralized mixing plant can often purchase sand, gravel, and cement in quantities (saving on hauling costs) and deliver mixed concrete to the job as cheaply as the builder can purchase the unmixed materials. The mix is in many instances poured directly from the truck into the forms by chutes, a further saving in labor costs.

The low price and high structural quality of concrete block are made possible by modern, efficient concrete block machinery. Although the builder will generally buy these blocks, some contractors specializing in this type of construction may find it profitable to operate their own concrete block equipment, deriving additional income from the sale of the material to other builders.

Pneumatic concrete applicators have been developed to a high point of efficiency. Cement coat, stucco, and plaster are interchangeably handled by the same machine.

Concrete buggies having pneumatic tires, with the load balanced over the axle, have replaced the wheelbarrow. For large projects, power-driven buggies handle up to a yard at a load, doing the work faster and cheaper.

Gasoline engine or air compressor vibrators may be used when pouring columns, slabs, or footings. Air pockets are eliminated, a more homogeneous mix is obtained, and a harder, denser concrete is the result.

Troweling machines operated by gasoline engines do the preliminary work of finishing concrete surfaces much faster than by hand, and by giving a more thorough finishing, produce a harder, more wear-resistant surface.



CORRECTLY SIZED EQUIPMENT for the job to which it is assigned is always important. It is costly to use a small unit for a heavy job or a heavy unit on a small job

Recently developed techniques for improving the quality of concrete and extending the application of its uses have been made possible only by the special machinery for their use. Vacuum elimination of excess water from concrete slabs, in which a vacuum blanket is placed on the slab before finishing, and the excess moisture drawn off by a vacuum pump, produces a concrete which is much harder than conventional pours. In addition, it requires less finishing time and may be placed in use sooner.

Prestressed concrete, in which reinforcing rods or wires are placed under tension either after or before pouring, permits the use of much thinner sections without support. Special jacks and other prestressing equipment make such techniques possible.

# HEAVY HANDLING EQUIPMENT

The fork lift truck is fast becoming one of the most popular devices for handling materials. Load capacities are from one to ten tons. One fork lift can do as much work unloading. handling, and moving as five to fifteen men can do working by hand. and for less than the day's pay of one man. The variety of materials that can be handled more efficiently by fork lifts is limited only by the ingenuity of the operators in palletizing the loads. Brick, bags of cement and plaster, tile, pipe, mortar and plaster in box carriers, lumber, and practically any building material can be handled efficiently at low cost.

The straddle carrier is a most efficient handling unit for lumber, pipe, (Continued on page 516)



CRAWLER TRACTOR WITH BULLDOZER BLADE and cleated treads is efficient for heavy scraping and grading, can also dig shallow excavations



THE CRAWLER TRACTOR AND FRONT-LOADING ATTACH-MENT are a versatile combination for digging, earth-moving, and many jobs of handling materials on the job

# New Ultra-modern Low-Friction truck engines give you

# Gas Savings # 14%

# Designed for today's Speed Hauling needs!

New LOW-FRICTION design LIBERATES POWER ordinarily held "captive" by engine friction! IT SAVES GAS! It saves wear!

Good news for truck users! Ford's new, ultra-modern Low-Friction truck engines break away from the traditional "European" long-stroke piston design. They introduce a friction-reducing short-stroke in three completely new engines in Ford Trucks for '52.

Ford Low-Friction design incorporates new direct-breathing Overhead-Valves . . . gives you new High-Compression, for extra wallop to meet today's Speed-Hauling needs. Here's truck engineering that your Ford Dealer will be proud to tell you more about today!

Abuilability of equipment, accessories and trim, as illustrated, is dependent on material supply conditions



For '52 Ford offers a full line of trucks from half-ton Pickups to 20-ton (G.C.W.) Big Jobs. 5 great engines from 101 h.p. to 155 h.p., V-8 or Six. 3 new Low-Friction engines, plus famed V-8 (now 106 h.p.) and Big Six (now 112 h.p.)!

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DYNAMOMETER TESTS like this, over 50,000 hours on one engine model alone, proved new Ford Low-Friction engines develop more power per cubic inch, save up to 14% on gas!



### **NEW LOW-FRICTION DESIGN**

OVERHEAD VALVES for deeper direct "breathing"! )
HIGH-COMPRESSION punch with regular gas!
SHORT STROKE cuts pisten travel up to 20%!

Friction reduced in many ways: Autothermic Pistons have built-in clearance control. Precision-molded Alloy Cronkshaft cuts friction and wear at journals. New Full-Flow Oil Filter screens every drop of oil every time around. Result: Up to 30% cut in friction "power-waste"... the big reason why Ford can promise gas savings up to 14%!

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AVOID HIDDEN LOSSES	$\checkmark$ .	Chec Yours	
Are You Getting The Most Out of Your Construction Equipment	yes	more or less	no
<ol> <li>Do you have and use a regular, systematic schedule for inspec- tion of all equipment, both in the shop and on the job?</li> </ol>			
2. Do you consistently use preventive methods of maintenance, and see to it that equipment is repaired before a breakdown occurs, rather than waiting until a machine must be taken out of service?			
3. Do you have a regular procedure for lubricating all equipment at correct intervals, using lubricants as recommended by the manu- facturers?			
<ol> <li>Is equipment properly protected, both at the end of the day's work and when in idle storage, against rain, dirt, snow, freezing.</li> </ol>			
5. Do you make sure that each worker using equipment under- stands the operation, normal care, and maintenance of the machines?			
Do you use adequate safety measures at all times for any equipment which is in any way hazardous to the operator?			
7. Do you have full insurance coverage on your equipment against all possible hazards?			
Do you guard against over-loading equipment, operating at greater than rated capacities or faster than normal speeds?			
9. Are machines shut off when idle for longer than a few minutes, or unattended for any length of time?			
10. Do you keep replacements such as spark plugs and belts on hand, and have prompt sources of supply for other repair parts which might be needed?			
Are foremen and superintendents instructed on the procedure for getting prompt repair parts and service when needed?			
12. Do you carefully plan your work to eliminate moving machinery around too much from one job to another?			
13. Do you select equipment which is adaptable to many operations, as against "one job" machines, all other factors being relatively equal?			
14. Is responsibility for inspection, lubrication, adjustment, and repair of equipment clearly established?			
15. Are you "equipment minded," keeping up with new developments, and seeking new uses and applications of your present equipment to different types of houses, and different construction techniques?			

# NOW-an **All-Purpose Tractor** for Builders

- Speeds every phase of construction - from breaking ground to final landscaping. Easily transported on trailer.

# Allis-Chalmers HD-5G Tractor with **Quick-Change Attachments**

No end to the usefulness of the HD-5G Tracto-Shovel and its 13 interchangeable attachments. Ask your Allis-Chalmers dealer to show you a '5G at work or write us for literature giving complete information.



with trench-hoe attachment. Cuts narrow, flat-bottom ditch to depth of eight feet. Does precision work on footings, any small excavations.

# Handles lumber, pipe, etc.

lifts, loads, stacks or skids materials with lift fork. Works anywhere, including muddy or rough ground.

# Lifts shingles, brick, other materials to roof time loss on small-

# height to save major home projects.

# Excavates basements

with straight sides, level bottoms - moves and loads materials of all kinds with Tracto-Shovel bucket. Ripper on rear of tractor increases digging efficiency up to one third in any kind of soil.

### HD-5G Tractor has 40 hp., weighs 16,200 lb. with 1-yd. standard bucket. There are three other models of A-C tractors with 2-, 3-, and 4-yd. standard buckets for doing more work - faster.



# backfills,

does landscaping. using either blade or bucket Builds driveways - clears out trees, underbrush, big rocks saves time on all kinds of jobs.

(Continued from page 512) or other lengthy materials. The load is automatically picked up and lowered, a tremendous saving in manpower and time in handling. Prestacked loads can be picked up in the yard, delivered to the job, unloaded, and the carrier arrive back for another trip in less time than it would take for men to load a conventional truck by hand. Straddle carriers handle loads up to twenty tons and five-ton carriers can operate in close quarters with a turning radius of only three feet.

For lifting steel, concrete, and prefabricated sections the crane is indispensable. The small builder will use a combination crane and power shovel. Changing from one operation to the other takes only an hour or so, and idle time is held to a minimum. Heavy cranes are mounted on caterpillar treads, and tractors of this type have a variety of crane attachments. Booms up to 60-foot length

may be used.

The wheeled tractor and truckmounted crane are more versatile units for the builder of small homes where the weight-handling requirements are not so great. A rubbertired tractor with crane boom may be used with a bulldozer blade for light digging and excavating, and with a front-loading bucket for handling general materials on the job. Truckmounted cranes move quickly from one job to another, and with the boom removed, the truck may be used for general hauling.

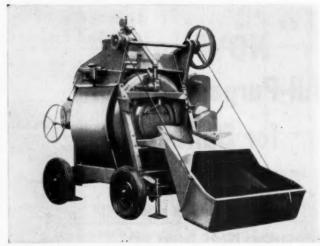
While the typical crane is winch operated, a truck-mounted model using hydraulic cylinders as the power-actuating mechanism is meeting with favor for many operations. Hydraulic control is smooth, and heavy loads are handled with ease.

The front-loader, previously mentioned, is one of the more versatile materials-handling units, Sand, gravel, and other loose materials are picked up, moved, and dumped with minimum time and effort. The frontloader is well adapted to handling common brick, roofing materials, and (with a fork lift) lumber, pipe, and other palletized loads. The relatively low cost of front-loader attachments for tractors or bulldozers makes them an attractive buy.

Many devices have been built or adapted for specialized operations. Concrete block, large concrete pipe and sewer tile, reels of cable, water main, and practically all building components otherwise awkward to move are easily handled with machinery designed "to fit."

# LIFTING EQUIPMENT

Hand-carrying of components up



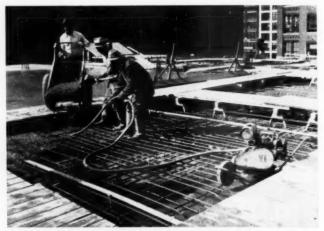
THREE-BAG MIXER shown above has power loader attachment. Rubber-tired wheels facilitate movement from one job to another

the ladder is rapidly vanishing from the building scene. The hod carrier was replaced by a hand-winch which lifted a wheelbarrow at a load. A gas engine or electric motor took the hand labor out, and lifted more per load. The continuous belt elevator lifts more, quicker, and eliminates the weight of the wheelbarrow and the lost time for return trips.

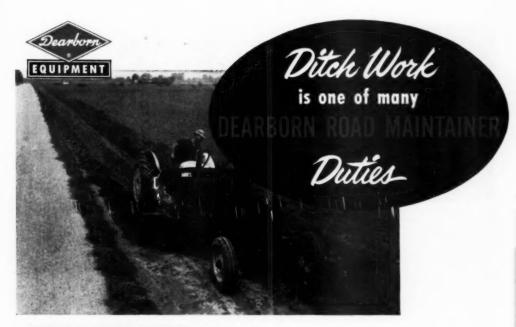
The portable elevator with two cages, an empty going down as a load goes up, is the general work horse for lifting brick, stone, and mortar to the second and third floors. Of either wood or steel, powered either by gasoline engine or electric motor, it is quickly put up and taken down, and readily moved from job to

job. Two buildings may be served by one hoist set up between them. In row-house construction, where buildings are close together, planks may be laid from one to another so that one hoist can handle as many as three or four units. A recent improvement in this type of hoist is a self-contained sixty-one foot hoist that can be moved from job to job without disassembly. An interchangeable wheelbarrow platform and concrete bucket are provided, and one-ton loads are safely handled. The whole assembly is on a skid so that it can be moved from one spot to another on the same job.

An alternate type of general hoist is the gasoline-powered winch which



PORTABLE CONCRETE VIBRATOR, powered by a gasoline engine, eliminates air pockets in concrete, makes a denser pour. Note also balanced-load, rubber-tired con-





DEARBORN SCOOP

The stout Dearborn Scoop, with 5.7 cubic foot capacity, teams with the Ford Tractor to do scores of excavating, filling, and material moving jobs. Quick attaching.



DEARBORN SIDE MOUNTED MOWER

This Dearborn Side Mounted Mower is built to mow highway shoulders, curbs, and rights of way-for fast cutting of big weeds to small brush. Ford Tractor Hydraulic Touch Control lifts and lowers cutter bar. 5' or 6' cut. Effective ditch work, including cleaning and reshaping, is only one of many key road jobs on the long list of the Dearborn Road Maintainer.

It's built like a motor grader, with a 14-foot wheel base, for good blading performance. Weight concentrated on rear wheels, and the strong frame for firm circle support, contribute to blading without "chatter".

Powered by the Ford Tractor, the Dearborn Road Maintainer proves unusually capable at repairing frost-heaved roads—smoothing rutted or "washboard" surfaces—maintaining berms—helping spread surfacing materials.

Full range vertical blade positioning is under responsive hydraulic control, energized by a pump that takes power directly from the Ford Tractor's crankshaft. This Maintainer, with an approximate weight of 6,900 lbs., can put a pressure of 3,500 lbs. on its 8-foot blade.

This unit's fitness for maintenance and moderate grading uses, plus its reasonable price, offer some remarkable advantages to users!

For complete information, write Dept. I, Dearborn Motors Corporation, or get in touch with your nearby Ford Tractor dealer.



# **DEARBORN MOTORS CORPORATION**

Birmingham, Michigan

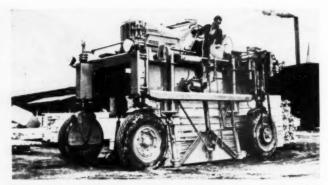


THIS CONCRETE APPLICATOR has a dual-compartment pressurized hopper for continuous operation. Adjustments for air and water pressure can be made while the unit is in operation, and different materials can be handled without changing parts.

lifts a wheelbarrow by a single cable and grapple hooks. This is useful on small jobs, or for roofers, chinney work, etc. Typically, a 5 h.p. motor and winch form a unit that can be moved about by one man, and will lift up to 750 pounds.

Other types of winches are mounted on trucks, powered either by the engine or a separate unit. The popular jeep winch operates from the front of the vehicle.

With all types of elevators, winches, and other lifting equipment, proper safety precautions must be observed. No load beyond the rated capacity of the hoist should be handled. Hoists and winches must be securely anchored. Cables should be inspected regularly and kept lubricated. Men should not be permitted to ride up or down elevators not approved for passengers, and no passenger hoist should lift by only one cable. Loads should be properly secured. Slings, grapples, and hooks



THE STRADDLE CARRIER makes easy work of carrying, loading, and delivering lumber, both in the yard, and to the job. Units are available for loads up to twenty tons

must be adequate, and only workmen properly instructed and authorized should be allowed to operate hoisting equipment. Workmen should be cautioned against walking under a suspended load at any time,

#### TRUCKS

Trucks play so important a part in the construction industry that a listing of their use would cover every building operation. Trucks, of all sizes, from the half-ton pick-up to the largest trailer assemblies, are used in one way or another in the construction industry. Special body designs, a wide variety of attachments for special work, dual axles and special gear ratios for unusual load and road conditions—all are ways in which the automotive industry has kept pace with the builder in developing equipment to meet specific needs.

Special body designs for hauling materials extend the truck's utility, and permit the handling of all types of materials with greatest efficiency. Dump bodies for hauling earth, sand, gravel, and other bulk loads give greatest load capacity and eliminate manpower in unloading. Partitioned dump bodies for concrete aggregates let the driver dump a mixer load of sand and gravel at a time, thus letting one larger truck haul three or four unit loads at one trip. Dump bodies for excavating are strongly braced to withstand the abuse of earth being dropped by shovels and buckets and have extensions over the cab for driver protection.

Lumber-handling bodies carry the load on rollers, so that the load may be unrolled from the truck onto the ground as a unit rather than unloading one piece at a time. Framing for a house typically loaded in reverse order, so that the first pieces to go in place are on top of the load, eliminating re-stacking.

"Various other special bodies are designed for hauling plate glass, rooting materials, etc. Heavy "gooseneck" trailers are used for moving bulldozers, shovels, and cranes from one location to another. Many bodies are demountable and interchangeable, so that the same truck chassis may



HOIST ON TRUCK can be used to lighten work and shorten time in a multitude of ways on building jobs



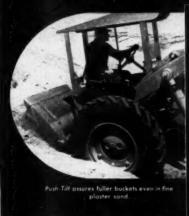
COMBINATION TRENCHER and front end loader. This machine is used for digging foundation walls, footings, sewer, water lines

# a STRAIT-LINE is Your Shortest path



Digs in Rear... or Digs in Front

AND, IT MULTIPLIES TRACTION... SAVES TURNING
MAKES STEERING EASIER... INCREASES STABILITY



But here is its Biggest Advantage



It takes plenty of traction to move from bank to truck in rough going like this. Reor-corried bucket makes it possible. And, in hard banks, the extra traction and Push-Tilt give you the same fast, profitable loading.

. ADDED TRACTION FROM REAR-CARRIED BUCKET

An Oliver Industrial Wheel Tractor and Strait-Line Loader is the biggest profit asset for any loading operation. It digs in back . . . or digs in front . . . and loads in front. No time-wasting turning or backing required.

Here's proof. These photos were taken loading out plaster sand, so fine it squirted out through a ten-penny nail hole in the truck body in a stream 4 inches long. Despite this difficult going, the tractor and Strait-Line wheeled its bucket loads upgrade without spinning. It

ran back from truck to bank with force. This extra traction for difficult conditions is created by the rear carried bucket.

This is a condition where rear digging solved the problem. In fact, under most conditions, the operator can do *more* with rear digging.

Why not check the Oliver Industrial Wheel Tractor Strait-Line for your loading.

THE **OLIVER** CORPORATION





A complete line of industrial wheel and crawler tractors.



LIGHT MOBILE CRANE is versatile tool for loading and unloading, for erection of steel and panels

serve for more than one specialized hauling operation.

Power take-off pulleys are supplied as an optional accessory on many light trucks for operating separate saws, pumps, compressors, etc. Hydraulic lift gates take the heavy labor out of unloading bathtubs, heaters, and similar heavy units, and also reduce breakage.

### SCAFFOLDING, SHORING, FORMS

The labor and expense of building scaffolding, forms, shoring, ladders, and horses on the job have been greatly reduced by the use of readymade units.

Steel scaffolds have kept pace with the requirements of modern construction, their use proving advantageous in a variety of jobs. Among advantages pointed out by manufacturers are low erection costs; high degree of safety, permitting fast and efficient work; easy inspection and reconditioning; and complete recovery of materials.

A recent development for scaffolds is the "mason frame," designed to improve bricklaying efficiency Other innovations are a frame brace lock to reduce erection and dismantling time, and an overhead protection attachment.



POWER-OPERATED CONCRETE BUGGY has large capacity, speeds production, cuts majerial-handling costs



THE CRANE ADAPTOR shown above converts back hoe machine to crame in five minutes on the job. is used for low-ering pipe or valves into the ditch. and is interchangeable with a fast back-fill blade using same boom and stick

In general, manufacturers classify steel scaffolds into two principal types—"coupler" and "sectional." Both are designed for erection from the ground up as construction progresses.

The coupler-type has four basic components—interlocking steel tubes, two types of couplers, and a base to carry the load. Standard couplers are used to carry the horizontal tubes, while couplers adjustable to a desired angle are used with the diagonal tubes for bracing.

Basic units of the sectional type of scaffold are welded steel prefabricated frames which can be assembled without tools for use with a large variety of structures. Their versatility is increased by such auxiliaries as end frames, trusses, ladders, brackets, and other devices. They can (Continued on page 522)



CHAIN FALLS makes light work of lifting heavy beams or pipe, provides safety by holding load at any point



HOISTS such as the above speed lifting of materials, eliminate hand labor, save

### HOW POWER TRENCHER SAVED FOR ONE BUILDER

The table below contains figures taken from the books of an eastern builder who carefully kept comparative costs between his old hand method and the mechanical system of trenching.

# TRENCHER

Original   A range   Cost per   Year   \$6,084.54   3 years   \$2,028.18	No. of houses 192
Cost of trencher per house	\$ 10.56
House Foundation: Average three houses per 8 heur day or 2-2/3 hours per house	
\$3.00 per hour by 2-2/3	
Loading fill and cleaning rubble, average 1/3 hour per house \$3.00 by 1/3 hour	1.00
Septic tank laterals:	
Average of 3 hours per house	
\$3.00 an hour by 3 hours	9.00
Payroll taxes on \$18.00 labor	.86
Gas and oil \$371.00 per year divided by 192 houses	1.93
Repairs, \$604.80 per year divided by 192 houses	3.15
Estimated average cost of trencher per house	\$ 34.50
MANUAL LABO	R
Foundations, one house average: 6 men 1 day 48 hours	
Laterals, average 4 men one day 32 hours	44.80
Leading fill and cleaning rubble, average 2 men 3	
hours each. 6 hours	8.40
Payroll taxes on \$120.40	5.78
1-1/2 yards mere of con- crete on account of width of trencher (men cannot dig a 12 inch wide trench)	
at \$10.75 a yd	
Savings Per House	\$142.31 \$107.81



# How to haul BIGGER PAYLOADS

The more you haul per trip, the lower your delivery costs will be—so you're interested, of course.

And the best way to be sure of hauling more lumber and building supplies per trip is to get a truck that fits your job—a Dodge "Job-Rated" truck. There's one factory-engineered to meet your needs...save you money... last longer.

Thanks to Scientific Weight Distribution, you can carry far bigger loads on your Dodge "Job-Rated" truck—without overloading. What's more, every unit

that carries the load—such as frame, axles, springs, wheels, tires and others—is engineered especially to shoulder your loads with plenty of brawn and muscle!

Start hauling those bigger payloads in a Dodge, and you'll also discover that gas, oil and maintenance costs hold to a low, low level the year 'round!

But this is only part of the story. Why not get the full story on Dodge "Job-Rated" trucks . . . how you can make more trips per day, and save dimes and dollars in the doing? Visit your nearby Dodge dealer.



# Mr. Customer!

Here are 3 important questions to ask yourself when buying sawherse brackets:

1. Will the sawhorse brackets take dressed, as well as, common lumber? You can be sure if you get Spec-Dee or Dalton breckets

2. After using the assembled sawhorse, will it fall apart when lifted to be moved? Is it like the chair whose legs drop off when lift-ed? Hoth Spee-Dee and inga drop off when lift-ed? Both Spee-Dee and Dalton brackets are designed to hold the parts rigidly so they can't slip out of posi-tion—no matter how hard you use the as-sembled horse, or how much you move it around With all this around With all this cassembled on the job quickly, easily for storing because of the exclusive, patented features of Spee-Dee and Dalton brackets.

3. Do I have to fol-3. Do I have to follow complicated in-structions to assemble a sawhorse? Not if you get Spee-Dee or Dat-ton brackets. The amazing simplicity, speed and ease of as-sembling horses with the new, patented Spee-Dee or Daiton brackets make them ourstanding in their price class.

# **NEW** Spee-Dee

SAWHORSE BRACKETS

A Low-Priced, Quality Bracket Takes Dressed or Common 2 x 4 Lumber

Complicated Instructions to Follow

Produces sturdy sawherses that won't fall agart when lifted by the rail! No complicated instrucs mails for securing the an-nity. Use for plug-gong, pic-and banguet tables, display bids, platforms, carpenter's ies, barricades, etc. Disas-ble on the job for storing.



Exclusive FLANGED NAIL

THE FORK LIFT TRUCK handles a wide variety of loads efficiently. In lumber yard, fork lift eliminates hand stacking

(Continued from page 520)

also be converted into mobile work stands by adding casters.

In connection with the use of either type of steel scaffolding, manufacturers list the following suggestions as important:

(1) Do not exceed the maximum load specified by the manufacturer.

(2) Guard against falling objects by installing suitable overhead protection.

(3) Use two-inch scaffold grade lumber for all platforms.

(4) Inspect scaffold carefully when it is erected and continue in-

For Heavy-Duty, Construction Service

FULLY-MECHANICAL SAWHORSE BRACKETS

Convert 5 Pieces of Lumber into a Sawhorse WITHOUT NAILS, BOLTS OR MITERING OF LEGS

Sizes for 1x4's and 2x4's

Uses: Platforms

· Scoffold-Work Benches

• Tables and others Simply out lumber in jaws and leg sockets — and tighten wingout! The members are locked rigidly in place — san't slip or work issue. Disassemble on the job for storing. Made of ineay gauge steel, fabricated for strength, have

rust-resisting finish



Sold by Hardware and Building Supply Stores. If not Stocked, have Dealer Order for You!

DALTON MFG. CO. 20 S. Central Ave., St. Louis 5, Mo.



Gets you UP in the world . . . **FASTER** SAFER **EASIER** 

# OWN

Get the most in profit and speed in all your jobs. Bil-Jax Scaffolding is light in weight . . . is easy and fast to set up and take down . . . and is SAFE, even with heavy loads. Other Bil-Jax money-makers: swing scaffolds, rolling trestles, sectional and lean-to ladders, ladder jacks, leveling jacks, accessories.



Write for literature . . . ask for bulletin D-4

BIL · JAX · INC. ARCHBOLD



FORK LIFT UNIT with load in elevated position. Loads may be stacked to a height of fifteen feet



POWER-OPERATED BUGGIES speed handling of concrete and other materials. The unit shown above has a capacity of 2000 pounds, and can operate at 16 m.p.h. Low center of gravity and short wheelbase provide excellent maneuverability

# Time saved is profit made with JAEGER-engineered machines

# Mix more concrete in the time you save with a fast-charging, fast-discharging Jaeger:

5 to 7 seconds charging with Jaeger's "Skip Shaker" loader, equally fast discharging with Jaeger's bigger bucket and flight blades, shortens every mixing cycle, gains time for extra batches, bigger yardage every day you work.

No risk of "down time" either, in your busy season. Jaeger mixers roll on chilled Timken bearing rollers and tracks of high carbon steel machined true on the drum, with heavy duty automotive transmissions and bigger engines that have power to spare for years of reliable service. Sizes 6S,

11S, 16S, Also 31/6S tilter and non-tilt Auto-Loader with automatic shaking batch hopper. Ask for Catalog M-10.







"New Standard" Compressors

Jaeger gives you 75 ft. of gir instead of 60; 125 ft. instead of 105, to increase work output with some men and tools. Catalog JC-1.



"Sure Prime" Pumps

Heavy duty construction and big capacity in light. portable small units-11/2 or semi-steel, 4000 to 10,000 gph. Catalog P-10.



# New 31/2ft Plaster-Mortar Mixer makes you money in 4 ways:

(1) Bigger capacity-31/2 ft. instead of 3 ft. (2) Better mixing-4 blades, instead of 2. mix smoother spreading material, fast. (3) Low for easy shoveling (only 34" high); easy to move (only 29" wide). (4) Heavy duty thruout - Timken bearing drum shaft with leak-proof neoprene seal, extra heavy gauge steel drum, automotive transmission, Wisconsin 3 hp engine. Ideal, not only for the small job but for bigger work where 2 small mixers will often give you more flexibility than one large machine.

# Jaeger Self-Raising Tower speeds placing, saves labor and accidents:

Assembled on ground, raised by its own power and easily moved as needed on its own skid base, this 1-ton Hoister tower eliminates hodders and scaffolding, operates either material cage or 14 ft. bucket. Standard height 37', can be extended to 67'. Automatic safety device positively prevents falling should cable break. Get Bulletin HS-1.



THE JAEGER MACHINE CO., 521 Dublin Avenue, Columbus 16, Ohio,

SALES, RENTALS AND SERVICE IN 153 CITIES OF THE U. S. AND CANADA



# KOHLER ELECTRIC PLANTS

Independent Source of Electricity



# The job moves faster

PORTABLE electricity eliminates expense and bother of temporary power line hook-ups. Low cost model operates saws, pipe threaders, cutters, electric drills, other tools having universal (AC-DC) motors. Develops 1500 watts. Compact, weighs only 75 lbs. Handles for carrying. Two-wheel, rubber-tired hand truck available. Other sizes, 350 watts to 15 KW. Write for folder 7-E.

Model 1.5M5, 1500 watts, 115 volt DC. Manual control. Length 18°, width 14°, height 21°.

Kohler Co., Kohler, Wisconsin. Established 1873

# KOHLER OF KOHLER

PLUMBING PIXTURES . HEATING EQUIPMENT . ELECTRIC PLANTS
AIR COOLED ENGINES . PRECISION CONTROLS

# "TROUBLE SAVERS"

for Busy Builders

THESE SAFE, FASY-TO-USE SCAFFOLDING ACCESSORIES SPEED WORK AND SAVE MONEY



SCAFFOLD BRACKETS



- Erect and dismantle faster than you can build a make-shift wooden scaffold.
- Nail, studding and bolt-attached types in 3' and 3½' lengths—rail carbon steel.
- Attachments available to convert any one type to any other type.

Manufacturers of "Trouble Savers"® since 1912

The Steel Scaffolding Company, Inc.

Used by thousands of

builders. Write for

Trouble Saver'

literature giving information on all

money-saving

Scaffolding Accessories.

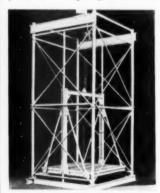
856 Humboldt Street, Dept. AB + Telephone EVergreen 3-5510 + Brooklyn 22, New York



CONVEYORS provide an efficient method of lifting brick, tile, roofing materials to second or third-story level. Extensions are available to adjust the height of the conveyor to the level needed

- spection as long as it is in use.
- (5) Never permit any structural member of the scaffold to be removed while it is in use, without permission from proper authorities.
- (6) The scaffold into the building every twenty feet of height and every twenty-five feet of width.
- (7) Install guard rails and too boards.

Adjustable shoring consists of a T- or L-head top section and an extendable leg, with adjustable stop points so that any height within the



TWO-SECTION UNIT shows typical construction of hoisting tower and cage. Such towers may be raised to any height, can also hoist concrete in buckets



THIS STAKE TRUCK is adaptable to a wide variety of hauling work. Model shown above has 1½-ton capacity



# CONTRACTORS—save money!

Mix plaster and mortar in a MULLER 3 FOOT MIXER



 An investment that will give you better plaster and mortar at far lower costs than old hand methods, Ideal for both inside and outside use. Holds full bag batch of most mixtures.

PRICE \$312 (with electric motor)

\$330 (with air-cooled engine)

FOB Metuchen, N.J.

Also available in 6, 9 and 12 cubic foot sizes

Write for name of nearest distributor.



Metuchen 4, N.J. Cable Address MULMIX



THE TRANSIT MIX CONCRETE CARRIER is only one of many special truck units developed through close co-operation between truck and equipment manufacturers

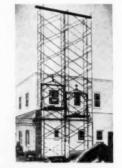
range of the shore may be obtained. Top sections are generally of wood, with the leg of "T" cross-section steel, combining lightness and strength. This type of shoring is quickly set up and leveled off, and may be removed with more speed and ease than the conventional 4 by 4's and wedges.

Plasterer's and bricklayer's horses of steel are permanent, may be adjusted in height, and are quickly set up and knocked down for moving around on the job or transport to another location. Savings in lumber and labor soon pay for the first cost of this type of equipment.

Prefabricated forms for walls, decks, and columns of both wood and I've got to hand
it to you, Jones,
you know more
about the Building
Business than
I thought



Jones gets his information



HOISTING TOWER shown above has two cages for rapid handling of men and materials. Hoists may be either gasoline or electrically operated, have capacities up to 2500 pounds



DUMP TRUCK BODIES provide great efficiency in handling sand, gravel, earth, and other loose materials



It isn't what you know that is so important—it's knowing WHERE to go to get the information you need to do a job or solve a problem.

Builders and Dealers keep their AMERICAN BUILDER CATA-LOG-DIRECTORY handy so they can refer to it frequently.

# AMERICAN BUILDER

79 W. MONROE ST.

CHICAGO 3, ILL.



# ONE-MAN LOADER MAKES A ONE-MAN JOB OF FOUR-MAN LOADS

EASILY HANDLES UP TO 1/2 TON!
Belsaw ONE MAN LOADER requires
no installation...One man rolls heavy
loads on and off trucks; One man moves
it any place in your plant...One man
takes it to and from your outside jobs.
Easy operating two-speed hand winch
with extension handle for loading wide
boxes and crates.

Belsaw ONE-MAN LOADER handles up to ½ ton, weighs only 150 lbs. . . 10 ft. long with 16 in. wide ball bearing rollers on 1 ft. centers.

Order today through your equipment dealer or direct. Immediate Shipment.

Money-Back Guarantee If Not Satisfied After 10 Day Trial!

BELSAW MACHINERY CO 2001 Field Bidg., 315 Westport Rd., Kansas City, Mo. Dealer Inquiries Invited

# Straight-from-the-shoulder facts show you save in every way with

# CHEVROLET Advance- TRUCKS

FACT No. 1

#### COSTS LESS TO BUY

Motch a Chevrolet truck against any comparable truck capable of handling the same payloads. You'll find Chevrolet trucks list for less, yet bring you ruggedness, staming and great features not found in the other truck.



#### RIGHT TRUCK FOR EVERY LOAD

Chevrolet trucks are factory-matched to your payload and service requirements. You don't buy "too much truck" or "too little truck." Frame, axles, springs, body, brakes and power are balanced for the job.

FACT No. 2

#### SAVES MONEY ON THE JOB

Experienced truck operators know Chevrolet trucks cost least to own and maintain. Valve-in-Head economy, in the Chevrolet Loadmoster or Thriffmaster engines, soves on gas. Four-way engine lubrication reduces wear and all costs. Rugged construction means long life.



#### KEEPS ITS VALUE LONGER

Records show that Chevrolet trucks traditionally bring more money at resale or trade-in than many other makes. Chevrolet's market value stays up because the value stays in! More proof that Chevrolet is the best truck buy! See your Chevrolet dealer soon.

# CHEVROLET ADVANCE-DESIGN TRUCK FEATURES -

TWO GREAT VALVE-IN-HEAD ENGINES— Leadmaster or the Thriftmaster—to give you greater power per gellon, lower cost per loud • POWER-JET CARBU-RETOR—for smooth, quick occeleration response • DIAPHRAGM SPRING CLUTCH for easy-action engagement • SYNCHRO-MESH TRANSMISSION — for fast, smooth shifting • HYPOID REAR AXLE—for dependability and long life • TORQUIA-ACTION BRAKES—on light-duty models • PROVED DEPENDABLE DOUBLE-ARTICULATED BRAKES—on medium-duty models • TWIN-ACTION REAR BRAKES—on heavy-duty models • DUAL-SHOE PARKING BRAKE-for greater heldling ability on heavy-

duty models • CAB SEAT—with double-deck springs for complete riding comfort • VERN-PANES—for improved cab ventilation • WIDE-BASE WHEELS—for increased for mileage • BALL-TYPE STEERING—for assist handling • UNIT-DESIGNED BODIES—for greater load protection • ADVANCE-DESIGN STYLINO—firereased comfort and modern appearance.

CHEVROLET DIVISION OF GENERAL MOTORS, DETROIT 2, MICHIGAN





# SAVE TIME

LOWER BUILDING COSTS WITH

# MULKEY

# ALL-STEEL PORTABLE ELEVATOR

Here's one of many examples how THE MULKEY Elevator saves as much as 40% by cutting time and labor on the job. Shown in action below, a MULKEY 40-ft. Elevator moves 16 concrete blocks per minute up to each individual room on second floor level.



Write for Prices and FREE Literature today!

# SAM MULKEY COMPANY

1621-AB-452 Locust Street

Kansas City 8, Missouri

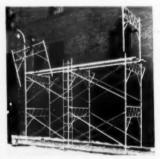


TWO TYPES OF SCAFFOLDING are shown: prefabricated steel units for mason and other construction operations, and hanging scaffold for cleaning and tuck pointing

steel offer the same advantages of low erection and dismantle time, full recovery of materials, and better finish for the work after stripping.

#### SELECTION

It goes without saying that the builder who is constructing only ten or 12 homes a year will rent rather than buy such heavy equipment as trenchers, concrete mixers, cranes, and the like. Through his local dealer he can obtain, for the specific job in hand, nearly any kind of equipment he needs. Some builders may find it profitable to follow the



PREFABRICATED STEEL SCAFFOLDING is shown in assembly. Note pulley fitting for raising sections and material, and ladder for safety



A TRACTOR AND SEMI-TRAILER for hauling cut stone, which incorporates a derrick for loading and unloading

"TROUBLE SAVER"

SCAFFOLDS

Save Time and Man-Power on Light Construction Jobs

Even on small jobs, "Trouble Saver" Sectional Steel Scaffolds are profit-makers for you. Prefabricated frames fit into place quickly and securely. This, strong, safe scaffold can be erected and dismantled in minimum time. Indoors and out, it is more efficient than old-fashioned built-on-the-job wood scaffold.

With "Trouble Saver" you erect a scaffold to fit the exact needs of each job. Time-saving and efficiency features include extension legs for levelling and built-in ladders.

> Get the facts! Write for Bulletins PSS-15 and PSS-24. See how other contractors use "Trouble Saver".

Distributed by:

- · Brick Laying
- Stone Setting
- Chimney Work
- Painting
- Stucco Work
- Sidewall Jobs

Approved by Underwriters' Laboratories, Inc.



Strong 5' wide, many-purpose mason frames are handy units in "Trouble Saver" assemblies. Separate working and material storage levels are provided for faster, easier work. Rungs may be used as a ladder.



38-21 12th Street, Dept. AB • Long Island City 1, N. Y.
West Coast Plant: 6931 Stanford Ave., Los Angeles 1, Calif.



CONSTRUCTION MACHINERY COMPANIES, WATERLOO, IOWA, U.S.A.



POWER POST HOLE AUGER operated by two men does work quickly and neatly

pattern of the farmer who owns the expensive threshing rig-own the equipment, and rent it out to other builders in the locality. However, any purchase of construction machinery or materials-handling equipment must be predicated upon getting the money back-with a profit-during the estimated useful life of the machine.

Builders who operate on a fairly large scale will frequently find that the convenience and time saved by having the machine at hand when it is needed will offset the added investment by eliminating man hours lost waiting until the equipment is



ROTOTILLER used to break ground before seeding

available under a loan or rental arrangement. The key to making efficient use of such heavy equipment is to co-ordinate its activity with other building activities, so that it stands idle as few days a year as possible.

#### MAINTENANCE

Improper, inadequate, and irregular machine maintenance is responsible for more machine downtime than any other single cause. This



CONCRETE VIBRATOR used ground jobs in a great many ways

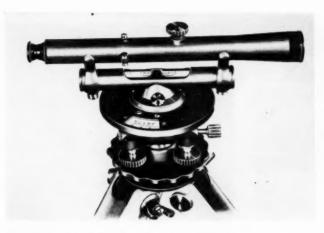
is particularly true of the piece of equipment which is used only oceasionally. Routine maintenance tasks assume a size out of all proportion to the amount the machine is used. Consequently, normal functions of cleaning, lubricating, and adjusting. are let go "until next time," which may be weeks later. In the meantime oil and grease has congealed or dried out, dust and grit have collected on bearings, and in other ways the machine has deteriorated for lack of care. When it is finally operated, it is naturally subject to break down.

The key to having good machine maintenance is the rigid operation of a simple check-list or tickler follow-up system on which each piece of equipment is listed together with a schedule of its routine maintenance and periodic overhaul requirements. Follow-through on this can save hours and days wasted. Manufacturer's recommendations are usually adequate for routine maintenance operations, and can be incorporated into such a follow-up maintenance system. If the builder will add to his system a centralized responsibility for machine maintenance. things will move more smoothly. It is usually found practical to have one man who functions more or less as a maintenance specialist and who will handle all major maintenance



reduced hauling costs to only 31 cents per yard





MALL builders, looking for ways to make their operations more profitable, can well give some thought to the amount of time and effort devoted to managing their business, keeping office records, and handling routine office procedures, as well as to the engineering equipment with which they work.

## Accounting Systems and Record Keeping

Delegates to the 1952 NAHB convention in Chicago listened to the authors of a book on small-builder accounting which has been published by the Housing and Home Finance Agency. This book gives details on simplified small-builder accounting methods, considers building problems and construction methods, costing, job records, payroll and other procedures.

## Visible Loose-Leaf Binders

Visible loose-leaf binders have been found practical by many builders for purposes such as recording social security data, keeping customer accounts and prospect lists, purchase records, mortgage data, insurance accounts, bank records, and equipment inventory and depreciation records.

#### Visible Card Systems

Visible card systems are particularly useful for keeping records to which frequent reference may be made. Mortgage data, materials records, bank records, payroll, sales records, and similar information may be recorded and reviewed rapidly with these systems. Most systems protect the visible margin with transparent plastic material which may be color-keyed to signal basic information without referring to notations on the card, and provide for insertion of existing card records without reentering information on the new card.

### Engineering and Drafting Equipment

Basic drafting and engineering equipment has not changed radically in recent years. Levels and transits of good quality have improved optical systems with coated lenses, internal focusing on dirt and dust-free inside lens surfaces, ball bearings, and rack and pinion operating mechanisms.

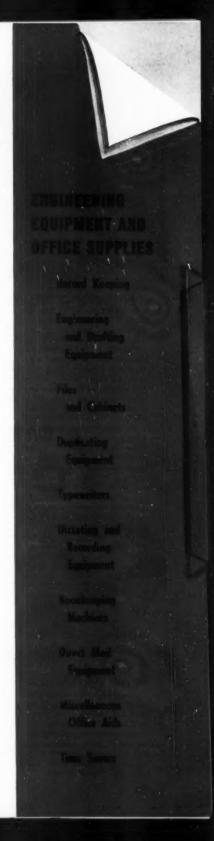
Slide rules, scales, drawing instruments, and similar devices have been supplemented with a number of gadgets to facilitate perspective drawing, house plans with template of plastic with useful shapes cut out, and other tools which combine functions of T-square, straight-edge, protractor and parallel rules.

# Files and Cabinets

The average person might well think that a file cabinet is just another file cabinet, but this is no more true than to say one house is like another. Primary questions in selecting filing equipment include frequency of reference, permanent or temporary storage, necessity for security against prying or pilferage. need for fire protection, floor and office space available, and investment which the individual builder's operation can justify. Proposals and bids, specifications, contracts, and other valuable papers might well be put in a fireproof file which has passed the underwriters' tests. Ball-bearing, fullsuspension files will work easier, and probably stand up longer than the economy models.

# Duplicating Equipment

There are three basic types of duplicating equipment commonly available for use in the average small office: stencil, spirit, and offset. Mimeograph has become virtually a generic term, just as "Coke" for





#### GADGETS AID EFFICIENCY

Electronic secretary shown above answers the telephone with recorded greeting, puts information and messages on tape for owner. Owner can call in and machine will deliver messages. Automobile telephone shown at right provides 20 calls a month for base charge of \$28, more than pays for itself in time saved and convenience of being constantly in touch with the home office.

cola beverages. There are, however, many different manufacturers of stencil-type duplicators, most of whom put out models operated both by hand and by electricity. Efficient reproduction of copies with these machines requires clean typewriter keys, an even "touch" in preparing the stencil, and a clean and well-oiled machine with ink pad in good condition for proper distribution of ink.

Spirit duplicators operate by typing a master on a sheet of smooth paper using special carbon paper. The master is inserted in the machine much as a stencil in stencil duplicating, and an alcohol base fluid moistens the master as each sheet passes over it and picks up enough of the carbon to make one impression. These machines are made in both hand and electric-operated models.

Offset equipment is primarily useful to the larger business where longer runs of forms and other papers are required. It operates in many ways similar to spirit duplicators, but actually could be considered "production" printing equipment.

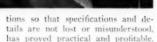
#### **Typewriters**

Over the years since the development of the early Oliver typewriters with separate keyboards for capitals and lower case letters, manufacturers have constantly improved their products until today several manufacturers offer electrically-operated machines which do almost everything for the operator but spell correctly. Standard models have a variety of special features including easy ribbon changes, removable platens for cleaning and dressing, automatic margin settings, decimal tabulation for billing and accounting work, touch controls, and similar devices.

# Dictating and Recording Equipment

There are four major types of recording and dictating equipment currently available and of use to the small builder. These include disc, tape, wire, and cylinder-ribbon types, all of which have now become electronic in operation.

Small builders will find such equipment very useful as time savers. When routine correspondence, specifications, job changes, and similar matter can be dictated and recorded for transcription later, the typist can be doing something else while the boss is dictating. In addition, the use of such equipment for conferences with clients where terms and specifications are discussed, and as a means of recording vital telephone conversa-



Most of the equipment manufacturers also provide mailable discs of wire or tape so that dictation may be made in the automobile or in the field wherever there is electric current available.

# Bookkeeping Machines and Equipment

Adding machines, calculators, printing calculators, and other book-keeping machines are designed not only to save time but to increase accuracy. This is of special importance to builders, because in figuring estimates and keeping track of expenses, lack of accuracy can easily cause an operation to show a serious



NEW FILE for plans and drawings has equal capacity to 30 regular drawers in horizontal cabinets, holds up to 5.000 sheets flat in folders by means of spring tension. Folding shell makes notations easy, and visible index in lid makes finding simple

loss instead of a reasonable profit.

Estimating quantities of lumber and brick, extending invoices, figuring percentages, calculating costs, analyzing sales, computing payroll and social security, preparing financial statements, prorating expenses, discounting, pricing, and other general accounting operations are facilitated with one or more of these machines.

# Direct Mail Equipment

Direct mail advertising—the use of letters, postcards, and various special mailing pieces—is salesmanship in print. It multiplies your sales efforts, and by properly qualifying inquiries and prospects, it can save you hours of time for real prospects instead of idle "suspects."

Thousands of builders have learned by experience that the consistent use of direct mail to keep in contact with old customers who recommend them to friends, and to keep their name before others in the community, will bring in new business and new customers as well as increase remodeling and modernization work.

The labor in folding mailing pieces, addressing, sealing and stamping will frequently run as high as 26 per piece for hand operations. Unless there are several thousand pieces being mailed on a list which is used repeatedly to gain the impact of repetitive advertising, the average builder cannot afford an expensive addressing machine or productiontype folding equipment; he sends the work to the nearest letter shop. However, there are available a number of economical addressing machines operating on the spirit duplicator principle, in which the list is typed with special carbon on a roll. The roll containing addresses feeds through the machine as postcards or envelopes are inserted by hand, and makes possible addressing 1,000 or so pieces an hour.

Similarly, there are several low-cost folding machines available for small-office use, which will handle sheets of paper from 2½ by 3½ inches to 9 by 14 inches, and perform single folds, parallel letter folds, double parallel folds, accordion or statement folds, French folds, and horizontal with two vertical folds.

Postage meters now are used on over half the outgoing mail in the country, according to manufacturers. For the small office, they have the advantage of speed in sealing and stamping mail, and faster handling in the post office, where metered mail needs no postmarking or cancellation and thus goes out for delivery that much faster. Also, meters imprint an



# Proved...with the Printed Tape!

Accurate estimating is the initial step toward a profitable operation. And profitable estimating can only be based on fast, dependable figure work.

The Remington Rand *Printing* Calculator gives you this vital speed and accuracy. In *one machine*, you get short-cut multiplication and automatic division combined with lightning-fast addition and subtraction—plus "first-time proof" of accuracy, printed on the tape.

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Remington Rand Printing Calculator



# Remington Rand

Room 2008, 315 Fourth Avenue, New York 10, N. Y.

Please send my FREE copy of "A Blueprint for Figure-Fact Efficiency." No obligation of course.

Name Company

ity Zone State

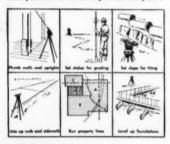
# White Universal Level-Transit...



# the most versatile instrument you can own!

YES, the White "Universal" Level-Transit is the most practical, complete instrument on the market. Now available in a new improved model - the No. 3000 - with internal focusing, coated optics, guarded vertical arc. In fact, every feature to assure you lifetime durability and accuracy. And the price is only \$185\*. complete with tripod. See your dealer, or write DAVID WHITE COMPANY, 311 W. Court Street, Milwaukee 12, Wisconsin.

# Indispensable for all these jobs and many more





We affer the most export REPAIR SERVICE on all makes, all types

Price subject to change without notice.

advertising message at the same time. and completely eliminate the stamp pilferage problem.

#### Miscellaneous

Contractors who wish to make deluxe proposals, binding their specifications and proposal in "book" form with drawings and other data securely bound, may do so with plastic binding equipment now available and suitable for use in the small office.

The common wax marking cravon has been developed still more by manufacturers. Builders may now obtain special crayons for marking lumber that are unaffected by climatic



ELECTRIC TYPEWRITERS such as above are said to increase speed of normal typist 25 per cent or more, provide more legible carbon copies, and less fatique

conditions; for marking wet or green lumber, metals both hot and cold. glass, rubber and asphalt tile.

#### Time Savers

The electronic secretary and automobile telephone are time and work savers for a number of builders. The electronic secretary consists of a small phonograph containing an answering record and a standard wire recorder which can record an hour of talk. When the phone rings, the phonograph record requests the caller to leave a message. The wire recorder cuts in and takes down the information inductively. Letters and instructions can be given the recorder over the phone for transcription at a later time. This device is of particular interest to the small office, operating perhaps with only part-time secretarial help.

An important point to bear in mind about most types of office equipment is that while they are useful in any large office, they are particularly useful to the small operator.

The small builder multiplies manpower at his disposal through the use of machines, machines which require no withholding tax, no wages, no social security payments, but only a little oil and reasonable care to give years of profitable operation.



BALTIMORE BOSTON BUFFALO CHARLOTTE CHICAGO CINCINNATI CLEVELAND DALLAS
DAVENPORT
DENVER
DES MOINES
DETROIT
HOUSTON
INDIANAPOLIS

KANSAS CITY LOS ANGELES MILWAUKEE MINNEAPOLIS NEW ORLEANS NE WARE OKLAHOMA CITY PHILADEL PHIA PHOENIX PITTSBURGH PORTLAND

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SEATTLE

quote monthly payments . . . not the cost of the whole iob. You'll close more sales on the spot . . . for greater profits. And, you don't tie up capital when you finance the easy, ABC way.

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# BOSTROM LEVELS FOR HALF A CENTURY .

Have been the most economical

precision leveling instruments on the market.

Used and endorsed by contractors and builders everywhere. Sold on guarantee of satisfaction or money back.

No. 5 BOSTROM Convertible Level Detachable Com-pass when desired

Carried in stock by distributors from coast

to coast. Write today for literature, prices, and name of our distributor near



Bostrom - Brady Mfg. Co. 535 Stonewall St., S. W. ATLANTA, GA.



This builder uses what he calls an X-Ray house which has sides, sheathing, and other portions cut away to show details of construction, plumbing, heating and wiring installation and other features. Customers like to know what they are buying and appreciate this type of demonstration

CONTRACTORS and builders who are "merchandising-minded" will retain that attitude even under present restrictions of starts possible for 1952 and curtailments of various types of materials and supplies normally used in former years. With rising costs and rising prices, potential buyers are becoming more choosy, and the builder who is geared to aggressive and effective sales effort will get his share of the business first.

# Good Demonstration Pays

Many contractors have geared their selling effort to an effective demonstration, either utilizing a demonstration home after completion. a demonstration of a house under construction, or a cutaway model either on their own premises or on the site where other construction is taking place. When a buyer is putting ten or fifteen thousand dollars or more into a property, he must have confidence in the builder, and this confidence is greatly enhanced with the type of demonstration which explains carefully why certain materials are used, how the features of the building are constructed, and to some extent why new materials are preferred to others.

# Quality the Best Salesman

How to sell homes, in the final analysis boils down to a phrase familiar to all builders—simply build a better home and then let the public know about it. How to achieve more quality is a question that can be answered in hard work and close supervision of every phase of the job, in constantly improved design, in keeping in touch with developments in machines, materials and techniques, and in consistent alertness to meet changing tastes and living needs.

# Extras Add Sales Appeal

Some builders give extra sales appeal to their homes by lavish use of "extras." Variations from standard designs with different room arrangements are supplemented by installation of electrically operated picture windows, revolving closets in master bedrooms, hamper-utility cabinets in bathroom halls, floor-to-ceiling book-cases, storage or cabinet wall installations, prefabricated chimney or fireplace units, copper plumbing, automatic garage door openers, and plenty of closet and storage space.

#### Appliances Are Great Sales Aid

Women want labor-saving appliances, and most realize that if they



National Home Week in September, 1952, will offer dealers and builders a cooperative opportunity to display materials and equipment as well as building skills in their salesrooms and in open-house demonstrations



536

# DO THESE CONSISTENTLY

# **AVOID THESE**

# 1 Use Newspaper Display

- 1. When your operation is large enough to justify the
- 2. Use white space generously.
- Get a provocative headline.
- Adopt an attractive format and signature to develop familiarity with repeated use.
- 5. Use a map or clear instructions for reaching the property to view it.

  6. Be consistent, stay with it, repetition pays.
- 1. Using display space for "prestige" reasons. Classified frequently does as well or better.

  2. Don't clutter the ad with too much small print.
- Avoid vague generalities, overworked words like "beautiful," "bargain."
- 4. Don't try to "tell it all" by crowding.
  5. Don't duck the house's faults. Anything you conceal
- will come out against you later.

  6. Don't fail to mention price in the ed. 50% of adv. readers pass up ads with no price.

# 2 Use Newspaper Classified

- 1. Write copy the way you talk. Be brief.
- Tell your story from the buyer's viewpoint.
   Use brand names of equipment installed and sold
- as part of the package. Use several smaller ads scattered thru.
- 5. Sell value, not bricks and mortar. Use the basic emotional appeals.
- Use services provided by your local paper. They can help you write good ads, check results.
- 1. Don't over-abbreviate. The line you save may
- waste the lines you run.

  2. Don't splurge on Sunday and forget weekdays.

  3. Don't rush it. Take time to write a good advertisement, or don't run any.
- Don't say anything you can't prove. Try to build reader confidence always.
- 5. Avoid negative approaches, "scare" advertising.
  6. Don't write it off the cuff. Go look at the place as a
- buyer would. Then write the ad.

# Try Direct Mail

- 1. Use color in letterhead, sign in same color ink.
- 2. In copy, capitalize on special features such as locakitchen, landscape, etc.
- 3. Provide for follow-up. Repeated mailings to the same list pull many times the results of single mailings. The time to buy is NOW, but NOW is different for different people.
- 4. For emphasis add a handwritten note to typed or
- printed letters.

  5. Build your list constantly. More new names make more possibilities.
- 1. Don't misspell the man's name! Personalized letters with the name wrong are werse than broadsides with no nome.
- 2. Don't mail to "just anybody." Check the list and qualify names as possible buyers first!
- 3. Don't make it hard for them to reply. Provide reply card, prominent phone number, etc.
- 4. Dan't overlook your envelope. Make it sell for you with copy on back flap or side.
- 5. Dan't let your list get out-dated. Keep addresses current, and don't forget to keep names of your established customers on the active list. They have

# Try Radio

- 1. Try for spot announcement during sports programs considered the best time.
- Ask for action. Ask people to come and look!
   Try tie-ins with manufacturer's promotions when you have packaged kitchens etc.
- 1. Duck the time and program which has too many other programs competing for your listeners.

  2. Keep it simple. A long, involved story loses lis-
- teners and makes no sales.
- 3. Don't try it without a plan, a carefully prepared script, and follow-up ready to go.

# Signs and Souvenirs

- Keep signs freshly painted, neat, easily read. Use FOR SALE, and hang on SOLD strip later.
   Match beoklets and advertising pencils make convenient gifts for prospects and visitors.
- 3. Use some imagination to work out a unique device that fits your own operation particularly.
- 1. Avoid too large and unsightly signs which stamp
- you as an obnexious money-grubber.

  If you have any expensive gift advertising pieces or premiums, qualify the prospect to avoid wasting too much material.

  Pacif
- Don't work without a PLAN. Will you get the money back in goodwill and eventual sales?

don't buy them with the house, they may have to wait a long time to get them at all. Where it is possible to buy the appliances right with the house with no increase in down payment and only a slight increase in the monthly installment, the inducement becomes very strong indeed.

#### Color Helps Sell Homes

Color styling of homes should be undertaken with the same care that is given to design, site planning, landscaping, production, and financing. Integrated color planning, whether for single unit or large developments, adds sales appeal to replace what is frequently monotony in color and lack of individuality in homes. In planning the exterior color schene, avoid monotony, use colors which combine harmoniously with adjacent structures.

#### How Builders Sell Homes

Leaders in building and selling homes from all parts of the country have offered their field-tested sales practices to American Builder for the benefit of our readers. Ideas and opinions presented here have all been obtained by direct correspondence with builders, and are quoted from their replies.

#### (1) Consider special features

Such items as double sinks in the kitchen, tile shower stalls in bathrooms, are a great help in making sales. In the higher priced brackets, get away from old basic plan ideas.

#### (2) Fully furnish demonstrator

Where a builder has a number of homes under construction, the furnishing of one home is a great help in making sales. Have lawns in and yards fully landscaped. This gives the buyer a better chance to visualize what his own home will be like.

#### (3) Use good design

Use plans that present simple, pure architectural designs. Get your attractiveness from proportion, line, location and type of windows. Use no fake dormers or gingerbread. Interiors should be so pleasing that you would be glad to live there.

#### (4) Keep competitive price-wise

Keep your sales prices competitive at all times by maintaining a sufficient volume of construction to keep unit overhead at a minimum. Organize your sales force and handle your own sales. Make a name for yourself instead of for the broker.

#### (5) Prove quality

Prove to the buyer that you are selling quality. Show him that you want him to live in happiness after he buys his home. Cut all fringe operating costs so you can give him more for his money.

#### RATE YOUR PUBLICITY PROGRAM

#### How many of these efforts have you made?

1. WHAT'S YOUR STORY? Have you covered these: MADE MISSED A. Article on new site purchase ...... B. Reports on progress in plans for new building C. Construction starting date released ...... D. Letting of subcontracts announced ...... E. Ground-breaking ceremonies ...... day etc. ...... H. First street in, completion of first street etc. . . Appointment of sales manager, agent etc . . . J. Announcement of terms of purchase ...... 2. HOW ARE YOU SAYING IT? NO A. Do you use a news story peg? ..... B. Do you avoid duplication in several papers? C. Do you provide plenty of good pictures? . . . D. Do you KNOW what sort of story your paper likes? 3. WHAT MEDIA OR APPROACHES ARE YOU USING? A. Local newspapers, daily and/or weekly . . . . B. Local radio stations with educational program C. Local radio stations with news program . . . . D. Community organizations, their bulletins etc. E. Speeches to organizations, church groups etc.

### 4. PLANNING YOUR PROGRAM:

A. Do you have an over-all PLAN for publicity?
B. Is publicity integrated with advertising? . . . .
C. Have you provided check on pulling power?
D. Have you provided follow-up methods? . . .
E. Do you stay with it consistently, every week?

#### (6) Have something FREE

Try giving the buyer a complete service and check-up on his home after 30 days, FREE. Offer free adjustment on appliances by experts. Tell about free mail delivery and no city taxes on homes being built. Mention free parking, free playground for the children, etc.

#### (7) Furniture store tie-in

Try contacting a local progressive furniture store and getting them to furnish your demonstration or model home. Contact, also, suppliers of products that go into the home building, and between them and the furniture company's suppliers you can operate some large space cooperative advertising that will really get results.

#### (8) Try radio-to the housewife

We have a five-minute morning radio program which features a young lady who personalizes the 'home buy' of the day, offering description, location, decorative details, cost, down payment, and monthly payment. We have been most successful in attracting new clients who have come to us after hearing the radio show.

#### (q) Salesman should be "sold"

It is most essential that the salesman, himself, should be sold on what he is selling. He should be well versed in its many advantages and features, and confident of his claims in talking about such things as the heating system, weight and durability of castings, capacity of the furnace in B.T.U.'s, plus the fact that it is properly installed; the savings realized because of proper insulation, the weather resistance of the type of roofing used, the compact and convenient arrangement of rooms.

#### (10) Appliance dealers cooperate

Furnace dealers, appliance dealers, and representatives of stores handling linoleum and tile, for example, are always willing to cooperate in a program involving an open house opening of a development, and we have found it profitable not only in

making immediate sales but also in building up the prestige of our company.

### (11) Furnish demonstrator with used furniture

We had our decorating staff furnish one of our model homes in second hand furniture for less than \$1,000. It turned out to be amazingly attractive and we advertised it in the local papers and circularized pamphlets.

#### (12) Community playhouse

A community playhouse is the greatest sales idea we have used. It can be used with a project of 300 houses or more, and consists of building a club house, swimming pool for baseball diamond, wading pool for youngsters, barbecue, etc., for the exclusive use of the home purchasers. Prorating the cost among all the houses, it amounts to not over \$100 per unit.

#### (13) Sell saving and satisfaction

I tell purchasers that buying a home gives them and their family security and happiness and a good estate to leave at their death, I ask them why they rent when they can buy at a monthly payment no larger than the rent they are paying, I also tell them they save their earnings and put them in a bank which loans it to other people who are buying homes with it; so why not use their own money and buy a home for themselves.

#### (14) Use newspaper display

The most successful selling method is newspaper display advertising which displays an illustration of the house with floor plan, with full details as to price, down payment, FHA commitment, etc. Successful selling, however, really starts at the beginning with good site selection, neighborhood, honest quality construction.

#### (15) Watch the market

One fundamental which goes a long way towards success in this business is judging the market. Although the market for low-priced homes is saturated nationally, it may not be in your location, and vice-versa. Only by watching the market and filling real needs can homes be built and SOLD successfully.

#### (16) Follow the model!

When you set up a model house in a development or subdivision, have it fully decorated, and then adhere to its specifications and use the same fixtures and features in the rest of the subdivision so as to avoid any misunderstanding with buyers.

#### (17) Be specific in advertising

Don't be misleading in advertising, either accidentally or on purpose. Items listed in good advertising should include footage of house; brick or frame; basement or basementless; with or without garage; number of rooms; down payment; monthly payment and complete loan costs. This eliminates many unqualified buyers and ill feeling among people who misunderstand things otherwise.

#### (18) Personalize the pitch

Meeting personally as many prospective buyers on the subdivision as possible and spending enough time with each to create a feeling of your sincere interest in his housing needs is effective and necessary in modern home selling. By far the best help comes from sending a qualified and definitely interested prospect to a previous customer for verification and confirmation of your claims.

#### (19) Get everyone into the act

We have had great success by training our regular plumbers, carpenters, masons, and other tradesmen to meet prospective customers who appear on the site and tell them how the construction is being done, explain the quality that is being built into each house. Thus we get the prospects talking with one another and feeling friendly, and we have salesmen at their elbows all the time without their feeling any pressure from a "sales force."

#### (20) Cater to the children

Catering to children can be both enjoyable and profitable for members of a building firm. Prospective home buyers are impressed, and the youngsters get a great deal of fun out of simple presents of candy or inexpensive toys. We have a minimum of malicious mischief on our jobs.

#### (21) Signs are important

We believe that good signs are most important. Consequently, we spend a considerable amount building attractive ones. It is also important for signs to be repainted and freshened up frequently.

#### (22) Personal follow-up helps

Another good feature to use is the sending of flowers, bulbs or a bush to each buyer for a Christmas present. Also, whenever a baby is born, sending flowers to the mother at the hospital is welcomed and remembered. From all this we get many letters and testimonials which are compiled in a very useful scrapbook.

#### (23) Handling complaints

One of the most important things we have developed is a complaint follow-up system. When a complaint is made, one copy is sent to the craitsman in the field, another kept in the office. When the craftsman takes care of the complaint, or has a reason for not doing so, he writes

it on his slip and returns it, and this is then put in the file. We have found that present and past customers are our best salesmen (over 50 per cent of our sales in the past 20 years).

#### (24) Handle homes individually

One thing that aids selling homes is handling each house individually. We do not use a model house or show any home before it is completed. This includes all decorating, grading, lawn, sidewalks, etc. We then hold open house for this particular property by using newspaper display ads containing a picture of the house and talk only about this one house to all prospects. By this method we sold all of this year's production, except two, the first day they were offered.

#### (25) Use personal contact system

As we receive inquiries regarding homes, we get as much information as possible regarding the type of home wanted, which we follow up later as homes are available if we do not have something currently which would look interesting. People appreciate the personal touch of the builder who really tries to fit their specific family needs.

#### National Home Week

National Home Week plans by builders all over the country call for a more extensive observance of the event than in any prior year. Inaugurated by American Builder in 1948, and spearheaded by the National Association of Home Builders and its local chapters, in 1950 the NAHB was joined by the National Retail Lumber Dealers Association in sponsoring observance of the annual demonstration and merchandising promotion.

The open house technique has proved to be successful, even in smaller communities where the builder does not always have a house to show. Builders and dealers have a beautiful opportunity to team up for cooperative demonstrations of homes, materials, and equipment. The basis for successful promotion is an educational theme designed to give prospective home buyers and those considering remodeling an insight into all the materials, equipment, and skilled labor that are involved in completing the home-building job.

Builders and dealers will find the 1952 National Home Week an excellent opportunity to stimulate sales, which they will probably need at that time if present trends continue. It will also give them an opportunity to show the public that the home building and modernization industry has not been stymied by the loss of a few critical materials but will continue to satisfy customers' needs.

## Check These CUSTOMER CONTACT POINTS

	INADEQUATE	FAIR	6000
1. SIGNS, BILLBOARDS ETC.	Deface landscape. Definitely in the nuisance class. Loud, glaring.	Render extra service such as safety, mileage. Talk policies, service.	Suggest firm stability. Tell specific benefits customers receive from us.
2. DEMONSTRATION OR MODEL HOME FOR INSPECTION	Incomplete, cluttered, shows signs of haste or careless*ness.	Well finished, cleaned up for inspection, may have kitchen furnished.	Finished, landscaped, fully furnished with furniture all rooms.
3. OFFICE OR SHOWROOM BUILDING, EXTERIOR	Needs paint, cleaning, tuck- pointing, repairs, lacks like a "dump."	Clean, in good general re- pair, but not at all outstand- ing.	Distinctive, attractive, sug- gests prosperity, modern de- sign etc.
4. OFFICE OR SHOWROOM BUILDING, INTERIOR	Dirty, lighting bad, ventila- tion poor, hot in summer, cold in winter.	Well heated, moderate light- ing, clean, generally orderly appearance.	Clean, bright colors in dec- orative scheme. Air condi- tioned summer & winter.
5. APPROACHES: DRIVE- WAYS, SIDEWALKS	Littered with trash, broken, holes, icy in winter, narraw.	Unencumbered, cleen, in good repair, of proper width for traffic.	ice-free in winter, well drained, good repoir, wide. Fits inte "landscape."
6. ENTRANCES	Narrow, located in traffic- jam-prone spots. Bodly lighted.	Easy of access. Good width. No congestion. Lights all around.	Well designed in harmony with rest of building, Light- ing for display as well as protection.
7. INTERIOR FIXTURES, DESKS, CASES ETC.	Look worn, uncared-for. Dirty, cluttered, little or no arrangement.	Clean and shining. Proper height, design. Neat and functional arrangement.	Furniture and cases new, of modern design, attractive as well as functional.
8. FOLLOW-THROUGH	No follow-thru with customers after sale is completed.	Routine check made to see if everything is satisfactory.	Repeated follow-up with in- formation about house, ap- pliances installed etc.
9. CLERICAL PERSONNEL	No smiles. Reluctant to give customer service. Insist on all red tape.	Prompt in serving customer. Courteaus. Trained not to give offense.	Friendly, efficient, show they LIKE to give service. Prompt and pleasant.
10. SALES PERSONNEL	Ignorant of properties they sell, untrained in sales tech- niques.	Know their "merchandise." Have some soles training but can stand more.	Know "wares" very well. Try to bring out features of cus- tomer value in houses etc.
11. WORKMEN ON THE JOB	Do their work with no re- gard for customer's conven- ience or satisfaction with work done.	We try to keep up schedules to meet completion dates on time.	Workers have attitude: "Build it as though I'm going to live in it myself."
12. PERSONNEL—OFF DUTY RELATIONSHIPS	Personnel ignore or deprecate the fact that they work for us in their off duty contacts.	Most employees seem proud to work here and admit it to their friends.	Most employees seem to promote goodwill actively for our organization in their own contacts.
13. COMPLAINT OR ADJUST- MENT HANDLERS	Employees think customer is always wrong. Slow to serv- ice complaints. Would prefer to alibi.	Trained to handle complaints and adjustments promptly, courteously. The customer is right etc.	Careful, courteous treatment at all times. Make real effort to keep customer happy.
14. TELEPHONE CONTACTS	People careless in taking calls, handling messages. Don't get names, poor tele- phone voices etc.	Trained to get names right. Give put answers to all of the most common questions etc.	Courteous, friendly, get names right. Cheerful voices. Have detailed instruction for handling most situations.
15. THE BOSS, EXECUTIVES	Too busy being a "boss" to have much time for close customer contact.	Spends more time with cus- tomers than watching the rest of the business.	Has a fine happy medium. Keeps enough close customer contacts to have the feel of the thing.

How Do Your Customers Rate You?

#### Performance CHECK UP for Builders' Salesmen 6 Establishing personal sales quotas: Yes Ability as a teacher: De you use daily and weekly personal Do you feel that you know your subject, your product and service, well enough to teach a new salesman? terms of specific results? Do you make use of a large wall chart or other graphic record of your past When you are making a sales presentation, do you question the buyer caresales and future objectives? fully from time to time to be sure he Do you set yourself a definite quota of understands? "cold turkey" or new-prospect calls for When you are "educating" a customer, each day, week, month? do you start by finding out what her real problem is and then help her find Ability to sell to groups or meetings: Managing your selling time: If you were faced with the problem of making a sale to a group of strange people, could you guide the discussion A. Do you spend a few minutes each evening deciding where your time will be spent the next day? to the decision you want? Before you enter a meeting at which Have you ever stopped to analyze how you intend to present a proposal, how you spend your time by listing for each day for a week what you did, where do you find yourself feeling-confident and alert? When the group sets up a cross-fire of Have you ever stopped to figure out in questions and arguments between the dollars and cents what it costs you to members, can you CONTROL the talk so make a single sales presentation? that it stays on the track and reaches the decision you want? Making the sales presentation: Managing your business: A. Except under emergency conditions, are you thoroughly prepared with "presale" De you maintain an up-to-the-minute information about each buyer? file so you have all essential information Are you more interested in helping the about properties ready "on tap?" buyer reach the right decision for him Do you have your travel organized so that you have eliminated back-tracking in helping him solve a problem, than you are in making a quick sale? (Be and unnecessary running around? honest on this one!) Have you developed complete and ac-Do you invariably make a good imprescurate records, showing prospects, old customers, past business, needs of each, sien, well groomed, clean, neat, with a smile on your face whether you feel that way or not? Do you have your sales presentation so thoroughly in mind that buyer questions and objections never bother you? The ability to think as you talk: When you are meeting a new prospect Closing the sale: for the first time, do you remain confi-How often can you "pre-arrange the dent, say what you want to say easily CLOSE by theroughly qualifying the and freely? buyer at the start of your presentation? Do you have your ideas organized in When you come to the actual close, do your mind for making a presentation? you use the "secondary question tech-Are you so well prepared that you can't get "rattled?" specifying the details to the solution to the buyer's needs? As you approach the close, do you Are you able to converse easily with customers, answering questions, hanavoid questions which permit a YES or dling objections, and at the same time NO answer, and ask those requiring an fitting their ideas into your presentation explanation or statement of fact? as you lead them toward the "close? Ability to use words that sell: 10 The right TONE of voice is often as Handling the buyer face-to-face: important as the words. Do you shun monotony and dullness by effective in-A. Do you ever feel at a loss to decide flections and modulation of your voice? just how to size up a buyer in order to The telephone company says: "The voice with a smile wins!" Is your voice a make the most effective appeal to him? Is your voice a Do you enjoy winning an argument just FRIENDLY voice at all times? as you might enjoy winning a fight? Can you handle the price resistance problem by telling a full QUALITY story WORDPOWER is one of the greatest skills of all salesmen. Are you doing something each day to build up a more to every buyer? effective sales vocabulary? Do you find it easy to make clear to a buyer that his objection to buying is There is no passing score on this "quiz" but any item you really his main reason for buying? cannot answer "yes" may be causing you to lose profitable business. are you selling or just telling?

#### DESIGN HINTS AND ESTIMATING SHORT CUTS

### How Some Builders Create Character in Communities

THE home builder, like the doctor and lawyer, has a large responsibility to society. While he is providing for the physical comfort of his customers today, he must also be looking ahead to the contribution his work is making to the community as a whole.

In the mad scramble to produce houses between 1946-1951, a fair number of unfortunate economies and practices crept in, especially in developments involving a number of houses erected and "planned" to gether. There was in some cases a tendency to utilize the cheapest land available almost without regard to its actual fitness for housing, and to confine land improvements to a minimum.

The practice of stripping land of trees and grading to plane surface in order to save a few dollars, and the frequent use of traditional "grid" layout of streets and alleys, have created many communities which are not only unattractive but actually wasteful of land.

#### Slums of Tomorrow?

Monotony has been intensified through repetitive structural orientations in large project planning; and variation through minor changes in fenestration in many cases has only served to emphasize the basic sameness of the structures. In some instances we have seen faulty structural designs result from attempts to adapt stock plans to the stringent reductions made necessary under government regulations. Along with this, inadequate site preparation has omitted necessary retaining walls and

storm drainage facilities, thus creating serious erosion problems in surrounding land. Such housing projects may well be the slums of twenty years hence,

However, good community planning has been demonstrated in many developments. Since construction costs prohibit the introduction of architectural variety into house design in large-scale developments, the developer and builder must resort to other methods of creating variety.

#### How to Upgrade Community Planning

Techniques which builders have used to improve the character of moderate and low-cost residential developments include:

 The employment of curvilinear street layouts to introduce variety and interest and improve structural orientations in relation to light, air, sunshine, privacy and landscape requirements.

Conservation and skillful use of natural resources such as interesting topography, trees, and scenic vistas.

 Keeping any "stock house" unobtrusive by blending it with the landscape through appropriate design, use of subdued colors, and skillful siting and planting plans.

4. Breaking up long, monotonous vistas with curves, slopes, trees.

5. Creating dominant points of interest at the ends of streets or at street junctures to divert attention from the repetitive stock house.

Skillful mingling of house types to insure variety and a more efficient use of land.

None of these recommended techniques is expensive when employed by a builder with a thorough knowledge of planning and a genuine desire to create livable housing. The builder's responsibility for long-range community planning can only be met by such constructive planning.

#### Homes Families Want

Most families want to build a house that looks somewhat like the home they remember, but without the inconveniences or fussy ornamentation of that home. They want simplicity and highly functional efficiency in their home, lower cost and easier upkeep.

The typical house built after World War II was a one-story two- or three-bedroom house with one bath and limited equipment, and costing between \$10,000 and \$13,000. An estimated 20 per cent of postwar homes



PLEASING MODERN ENTRANCE adds charm to house faced with field-stone



FACE BRICK and ornamental metal work combine with functional design to make an attractive entrance to an industrial building

were traditional types, 22 per cent ranch-type, and 13 per cent modern.

Most 1952 buyers will want onestory houses with attached garages, and over half will want three bedrooms. An estimated 11 per cent will insist on separate dining room. Paint rather than wallpaper is the predominant preference for interior finishing.

#### Planning Commercial Buildings

Once a location has been chosen for a particular type of business, after considering such factors as traffic characteristics, pedestrians, automobile and public transportation, street width, proximity of blighted community areas, and other considerations affecting choice of site, it becomes necessary to plan for external conditions such as parking facilities, delivery lanes, adjoining buildings, storm drainage and street-cleaning facilities.

Light commercial buildings generally fall into three classes; Class "A" which is fire resistant to a 4-hour blaze and constructed of fire-resistant materials; Class "B" in which the framing is a skeleton of beams and columns with walls that are merely partitions, designed to withstand fire for two hours or more; and Class "C" buildings in which the weight is carried on the walls and which are fire resistant for about one hour.

Choice of materials to be used will be influenced not only by their local availability and cost, but also by the time required for construction which they involve. Decorative and easilymaintained store front materials such as terra cotta or architectural glass may take the place of sheet metal under present conditions, even though installation is longer. Number of entrances and their location must be studied with relation both to street traffic and traffic flow within the store. Exterior windows, except for display, are being omitted in much modern store construction, with consequent gains in ease of controlled interior lighting and air conditioning. Provision for future expansion of the building may be made with the original plans.

#### Store Fronts

Store fronts may represent from as little as 10 per cent to as high as 50 per cent of the cost of modernization of an existing structure, and may run around 25 per cent of the cost of new building in the case of a small store. Factors to be studied in planning the store front include considering whether the materials chosen reflect the character of the store itself, maintenance and permanence, sufficient depth for facade and entrance, simplicity, and whether the front suggests the quality of merchandise to be found inside.

Materials most commonly used in modern store fronts include marble, granite, terra cotta, pre-cast terrazzo,



REGISTRATION DESK and manager's office in a western motel combine attractive design with easy maintenance

structural or architectural glass, ornamental metal, stone, ceramic tile, porcelain enameled metal, luminous materials such as opal glass, wood, cement stucco and various synthetic materials such as laminated plastics and phenolics.

#### Store Interiors

Major problems of interior store design include establishing a pleasing sense of proportion between the various elements, providing for dominance of seasonal or special displays, controlling traffic by layout, styling of store fixtures in harmony with the design, providing for loading, unloading and handling stock, and providing some measure of acoustical control to deaden store noises. Only a detailed analysis of the projected store's operations can suggest workable solutions to these questions.

#### Estimating and Customer Relations

The problem of estimates, involving as it does changes in plan and final costs, is one which often plagues the relationship between builder and client. Mrs. X wants an extra closet. Her husband decides he would like a built-in bar in one corner. But when the bills come in, the builder gets nothing but complaints and abuse. The simplest way to duck all this trouble is to go over the original plans and specifications thoroughly with the client, and then use a written form whenever additional changes are requested, working out at that time the cost of these changes and making the client sign the authorization so that he has no complaint when the added bills arrive. Such a form can be printed in pad form, pocket-size, and can be used on the site when changes are requested. As a means of insuring harmonious customer relations, it works wonders.



HEAVY TEMPERED plate glass doors combine with ornamental metal finish to create a note of severe simplicity in this lobby design

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## 1952 American Builder Directory

THIS, the second issue of the annual directory compiled by the American Builder, gives the latest and most complete product and data information in the building field. Here contractors, builders, architects, and building material retailers will find information as to building products, their manufacturers, and brand names.

New this year are two sections, Industry Associations, and Communities which observed National Home Week

Section I-an alphabetical list of building products and equipment and their manufacturers;

Section II—an alphabetical list of brand names identified with names of manufacturers;

Section III-an alphabetical list of manufacturers of

building products and equipment with addresses:

Section IV-an alphabetical list of industry and allied professional associations;

Section V—an alphabetical list of communities which participated in 1951 National Home Week.

In addition, service organizations prepared to render aid to the industry and to furnish helpful information on special problems are listed under appropriate titles.

This year round reference directory is designed to serve the builder, contractor, architect, and dealer. As every effort was made to make it as accurate as possible, the American Builder cannot be responsible for changes in names, addresses and other discrepancies.

The names of manufacturers who advertise in American Builder are printed in holdface here, in the brand names list and in the list of manufacturers' names and addresses starting on page D-76

### SECTION I **Alphabetical List of Building Products and Equipment** Manufacturers

IN THIS SECTION I, building products and equipfacturers of these products and equipment listed under the appropriate titles. No cross references have been used in this section. The editors feel that the readers of the American Builder are well acquainted with the terms employed in the building industry and can lead themselves to the items in this directory. The principal proper nouns of classifications are the key words used in forming the alphabetical lists; for example, wood double hung windows are listed as-

Windows, double hung, wood

This section includes only the names of the manufacturers. The addresses of these manufacturers are listed in alphabetical order in Section III, starting on page D-76.

As an example, suppose that Mr. Jones wants to find the name and address of a manufacturer of ladder accessories. First, he will turn to the heading "Ladder Accessories" in Section I. Here he will find listed the names of eight manufacturers among which he may select the Red Devil Tool Co. Turning to Section III. he will find the address of the company (Coit Street, Irvington 11, New Jersey.) in its alphabetical order under the name Red Devil Tool.

#### **▶ ABRASIVE PAPER & CLOTH** Abrasive Products Inc AMERICAN FLOOR SURFACING MACHINE

Armour & Co Sandpaper Div Atlas Abrasives Corp BEHR-MANNING CORP DIV NORTON CO Carborundum Corp Clarke Sanding Machine Co Clover Mfg Co Detroit Surfacing Machine Co Dirate Mig Co Mid-West Abrasive Co MIG CO Mid-West Abrasive Co
Mid-West Abrasive Co
MiMESSATA MINING & MFG CO
PITTSBURGE PLATE GLASS CO
RED DEVIL TOOLS
Southern Galvern

ACOUSTICAL MATERIALS

Kelley Island Lime & Transport Co Kimberty-Clark Corp Kimsul Div LOCKPORT COTTON BATTING CO Mid-West Acoustical & Supply Co NATIONAL GYPSUM CO OWENS-CORNING FIBERGLAS CORP

Taylor Bedding Mrg U B Gypsum Co W00D CONVERSION CO ZONOLITE CO

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A & F Tilchoard Co
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BARCLAY MFG CO
BUILDIRG MATEBIRG & OB HGG
Div BIND 4 SON INC
Borden Co Chemical D)r
BRUCE (E L) CO
B 4 T METALS CO
CARDT (SAMUEL) INC
Campridge Tile Mfg Co
CAREY (PHILIP) CO
GELOTEX CORP
Civiste Co Inc

onsamers Glue Co bad & Lad Co buis Plywood Corp buFont De Nemours (E I) & Co last Coast Tileboard Corp Firestone Industrial Products Co Fleatneck Co FLHWTMGTE CO GENERAL ELECTRIC CO CHEMICAL DEPT Globba Boardclie Corp. Goodrich B F Co Hayes Adhesiws Co HIGGIMS INC INSULITE DIV MINNESOTA & ONTARIO
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Lostil Products Co Inc
Lostil Products Co Thomas Moulding Floor Tipe
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ePage's Inc. Metal Trims Inc Milwaukee Plywood Co Minnesota Mining & N

Mirauter Plywood Co Miracota Mining & Mfg Co Miracota Canting & Mfg Co Miracota Adhenives Dir National Starch Prode Inc National Adhenives Dir National Starch Prode Inc National Carell Salon Paidey Products Inc Paidey Products Inc

Co Inc Perkins Glue Co PITTSBURGH PLATE GLASS CO Place Div Paisley Products Inc PLASKON DIV LIBBEY-OWENS-FORD GLASS

Plastermon Wallhoard Co PRESTILE MFG CO Sloane-Blabon Corp Standard Paste & Glor Co Sullivan Co Superior Wall Products Co

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May CJ L Company
Meyer-Soth Co
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National Plans Br) Co
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Co
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GENERAL ELECTRIC CO AIR CONDITIONGENERAL ELECTRIC CO
GENERAL GENERAL MOTORS
GENERAL ELECTRIC CO
GENERAL GENERAL GO
GENER

Gilbert & Barker Mig Co
Gillert (J. L.) Co
Hendersen Mig Co
Gillert (J. L.) Co
Hendersen Entrace & Mig Co
Hendersen Entrace & Mig Co
Hendersen Entrace & Foundry Corp
Hotstream Heater Co
Hotstram Heater Co
JOHNSON (S T) CO
Kantine Co
McQuay Inc
Michael Mig Co
McQuay Inc
Michael Mig Co
Palmer Mig Co
Palmer Mig Co
Penn Boller & Burner Mig Corp
Persira Mig Corp

Petroleum Heat & Power Co
Philico Cup
Ray Olf Burner Co
Robott Heater Co
SERVEL IRC
SURFACE COMBUSTION CORP
SURFACE COMBUSTION CORP
VIEW MY CORP
US Air Conditioning Corp
Was Yiman Home Equipment Co
Was Yiman Home Equipment Co
Was Yiman Home Doublatte Div Eureka Williams
Wood (Carl Industries Inc
WOSTHWAITOR PUMP & MACHINERY CORP
WOSTHWAITOR PUMP & MACHINERY CORP

### VOUNG MADIATOR EN

Essick Mfg Co Utility Appliance Corp

#### ALARMS, BURGLAR

ALAKMA, BURGLAR
Auth Electrical Specialty Co Inc
Brunnell (J H) & Co Inc
Brunnell (J H) & Co
Edwards Co Inc
Edwards Co Inc
Edwards Co Inc
Edwards Interprises Inc
General Burglar Alarm Co Inc
Guardian Electric Mg Co
Lyon Rural Electric Co

#### ALARMS, FIRE

Edwards Co Ine Faraday Electric Corp Gelbrook Products General Detroit Corp Rockwood Sprinkler Co Sparts-Withington Co Sparti Faraday Inc

#### ALIGNERS, DOOR JAMB

#### ALUMINUM, ARCHITEC-TECTURAL & ORNAMENTAL

Apex Brass & Bronze Works
Radger Wire & Iron Works Inc
Brasso Mrg Co
GENERAL GRONZE CORP
KAWMEER CO
Nouman Bruthers Inc
PITTSBURGH PLATE GLASS CO

REYNOLDS METALS CO BUILDING PROD-SCTS DIV Weizel Mig Co

#### ANCHORS, BUILDING

Ackerman-Johnson Co

Adams Co Allen Steel Produ

Allen Steel Products
Arto Expansion Bult Co
Arto Expansion Bult Co
Carpenter & Fatterson Inc
Carpenter & Fatterson Inc
Carpenter & Fatterson Inc
Cereband Steel Specialty Co Inc
Consolidated Iron-Steel Mfg Co
Conver Steel & Wire Co
Dayton Sure-Grip & Shore Co
Decture Inc
Dectur Iron & Steel Co
Devices Inc
Decture Inc
Dectur Iron & Steel Co
Devices Inc
Decture Inc
Decture Iron & Steel Co
Decture Inc
Decture Iron & Steel Co
Decture Iron
Decture Iron & Steel Co
Decture Iron
Decture Iro

#### APRONS, WORK

TRUSCON STEEL CO

American Optical Co
Clifton Mfg Co
Clifton Mfg Co
Fulton Bag & Cotton Mills
Minnesota Specialty Co
Standard Awning Co
Troy Sunshade Co
Werner Canwas Products Co

U.S. Expansion Bolt Co UNIVERSAL FORM CLAMP CO WAGNER MFG CO Williams Form Engineering Corp Winner Industries

#### ARCHES, LAWN

Anchor Post Fence Co ARTCRAFT ORNAMENTAL INDN CO CARR ADAMS & COLLIER CO CURTIS COMPANIES INC RILCO LAMINATED PRODUCTS CO Stewart Iron Works

#### ARCHES, METAL

Alshama Metal Lath Co MOSTWICK STEEL LATN CO CECO STEEL PRODUCTS CO MILAND STEEL PRODUCTS CO Marino Lathing Supoly Co MATIONAL GYPSUM CO Penn Metal Co Inc TRUSCOW STEEL CO U S Gypaum Wheeling Corrugating Co

### ARCHES, WOOD,

Concord Woodworking Co Inc McKeown Brothers Co RILCO LAMIMATED PRODUCTS CD Super-Structures Inc TIMBER STRUCTURES INC Unit Structures Inc WEYERHARUSER SALES CO

#### **AREAWALLS**

Armos Steel Co Inc a

RRAINARD STEEL CO

CECO STEEL PRODUCTS CO

Decatur Iron A Steel Co

Booley Brothers

Harris Inc

Holmann & Barnard Inc

MARESTIC CO

#### ASBESTOS-CEMENT BOARD

Acme Ashestos Covering & Floering Co CAREY (PHILIP) MFG CO CELOTEX CORP

Manufacturers' Names and Addresses Start on Page D-76
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NOMASOTE CO JOHNS-MANVILLE CORP KEASBEY & MATTISON CO NUBERGID CO

#### ASBESTOS-CEMENT BOARD, ENCASED INSULATION

CAREY (PHILIP) MFG CO EELGTEX CORP JOHNS-MANVILLE CORP KEASBEY & MATTISON CO Standard Asbestos Mfg Co

#### AUGERS, PIPE

American Pipe Tool Co Durst Mfg Co Flexicoil Mfg Co Mueller Co Wolverine Brass Works

#### AUGERS, SINK

owsett Spring Co ritz Mfg Co -W Mfg Co

#### **AWLS**

Bridgeport Hardware Mfg Corp Crescent Tool Co Millers Falls Co Peck Stow & Wilcox Co SARGENT & CO STANLEY TOOLS DIV STANLEY WORKS

#### MANINGS, CANVAS

American Tent & Awning Co Astrup Co Canvas Products Co Cilifton Mfg Co Fulton Bag & Cotton Mills Hettrick (W.E.) & Son Co Indestructs Awning Co Tucker Duck & Rubber Co United Tent & Awning Co Wagner Awning & Mfg Co

### AWNINGS, STORE & RESIDENCE

FAWSCO MFG DIV FALLS STAMPING & WELDING CO HELTIPS (W E) & Sons Co KAWNEER CO ORCHARD BROTHERS INC ROT-DEL ID.

ROTHER DESCRIPTION OF THE STAMPING CO. STAMPING C

#### AWNINGS, WOOD

All-Weather Window Co Bostwick Goodell Co Lata Products Co

### AWNINGS & CANOPIES, METAL

AND CANADA PRODUCTS INC
Altonium, Auding to Div Orchard Bross Inc
Altonium, Auding to Div Orchard Bross Inc
Altonium, Auding Sala Sala
Auditure Shank Mankara, 1888 CO
Awalar Co
Bash Markara Maning Co
Culidars Mig Co
Culida

Perms-Steel Corp Ron-Del Inc RUSSELL (F C) CO Smith (F P) Wire & Iron Works STANLEY WORKS Thabet Mfg Co Troy Sumshade Co United Metal Products Inc Wolfe Products Inc Wolfe Products Inc

#### AXLES & DRIVERS, TRUCKS, SPECIAL

Cemeo Industries Inc Eaton Mfg Co Truckstell Mfg Co

### BALERS, SHAVINGS & SAWDUST

American Baler Co Consolidated Baling Machine Economy Baler Co Famous Mfg Co Kline (Lewis T) Co Stewart Co BARROWS & BUGGIES

can Cement Machinery Co Inc can Conveyor Co can Ladder Co can Steel Scraper & Wheelbarrow Co Boyle Mig Co
Buch Manufacturing Co
Case Crane & Kilhourne Jacoba Co
Chattanooga Wheelharrow Co
COMSTRUCTION MACHINERY CO
GOLDBLATT TOOL CO MULLER MACHINERY CO INC Sterling Wheelbarrow Co Toledo Wheelbarrow Co United States Steel Products Co Western Wheel Barrow Mfg Co Whiteman Mfg Co WORTHINGTON PUMP & MACH CORP

BARS, CROW & PINCH

nerican Swiss File & Tool Co cabel Tool Mfg Co mascus Steel Products Corp Decatur Steel Products Co GETTY (N S) & CO INC Proto Tool Co STANLEY TOOLS DIV STANLEY WORKS Valley Forging Co Woodings-Verona Tool Works

BASE, METAL

B & T METALS CO BOSTWICK STEEL LATH CO Goldsmith Metal Lath Co INLAND STEEL PRODUCTS CO Knapp Bros Mfg Co MACKLANBURG DUNCAN CO NATIONAL GYPSUM CO Penn Metal Co Inc.
REYNOLDS METALS CO BUILDING PRODS TRUSCON STEEL CO U S Gypsum Co Werner (R D) Co Inc Wheeling Corrugating Co Wollaeger Steel Corp

BASKETS, COAL

Edgerton Mfg Co Hooper (William E) & Sons Co Morris & Co
Sackett (H B) Screen & Chute Co

#### BASKETS, COUNTER DISPLAY

Marion Basket Co Inc Peerless Wire Goods Co United Steel & Wire Co Washburn Co

#### BASKETS, TRASH & WASTE

Boyle Mig Co
Boyle Mig Co
Boyle Mig Co
Boyle Mig Co
Kraus (Walter S) Co
BAJESTIC CO
BAJESTIC CO
BAJESTIC CO
BAJESTIC CO
Smith (F P) Wire & Iron Works
Wheeling Corromating Co

#### **▶** BATCHERS, ADJUSTABLE MEASURING

Blaw-Knox Co
Bodinson Mfg Co
Bodinson Mfg Co
Bodinson Mfg Co
Chain Belt Co
Concrete Transport Mixer Co
CONSTRUCTION MACHINERY SALES CO Fleming Mfg Co Heltzel Steel Form & Iron Co JAEGER MACHINE CO Johnson (C 8) Co Martin Steel Products Noble Co Supremix Willard Concrete Machinery Co Ltd

#### **BATHROOM ACCESSORIES**

Autore Co
Bay Bidge Specialty Co Inc
Camp Mig & Ales Co
Chrome-Tex Inc
Columbia Metal Rox Co
Columbia Plattle Products Inc
Columbia Plattle Products Inc
Columbia Plattle Products Inc
Columbia Campa Cap
Columbia Ca ets Co Ekco Products Co Farles Mfg Co Gerity-Michigan Corp Hallenscheid & McDonald

WALL-MACK CO Handy Things Mfg Co Home Essentials Corp HOUSE OF HOSPITALITY KITCHEN MAID CORP Kraus (Walter S) Co LAWSON (F N) CO MARSH WALL PRODUCTS INC MIAMI CABINET DIV CAREY (PHILIP) CB MILWAUKEE FLUSH VALVE CO MILWAUKEE FLOSH VALVE CO MUTTAY COTP OF America NATIONAL STEEL CABINET CO NATIONAL STEEL CABINET CO Northern Industries Inc Parker (Charles) Co Parker (S) Hardware Mfg Corp

PIGNEET CO PITTSBURGH PLATE GLASS CO PRESTILE MFG CO RESTILE WFE CO SARPT-BATTONE Lork Works SELEM (WALTER E) & CO SELEM (WALTER E) & CO Skulman Hardware Co Skyline Industries Smith (E C) Mfg Corp Sommer (J L) Mfg Cor O Standard Building Products Co Stylen Corp. Stylon Corp Superior Plastics Div Commonwealth Plastics Tiletone Co
T & S Brass & Bronze Works Inc
TeleBo DESK & FIXTURE CO
TORNER & SEYMBUR WFG CO
TYLAC CO
U S Declaring Co
U S Lock & Hardware Co
WESTWOOD MFG CO
Toungstown Mfg Co Inc

**BATHROOM CABINETS** 

American Enameled Products Co ANGEL MOVELTY CO Report Mrs. Co Camp Mfg & Sales Co CARR ADAMS & COLLIER CO CARR ADAMS
Cole Mfg Cor
Colgate Mfg Corp
Colotyle Corp Tyle-Bord Inc Div
Columbia Metal Box Co
Columbia Metal Box Co Conant Bros Co
COPCO STEEL & ENGINEERING CO
CURTIS COMPANIES INC Dyke Brothers

Excel Metal Cabinet Co Ine
Faries Mfg Co
Farley & Loetscher Mfg Co
Gerity-Michigan Corp
Gold Scal Mfg Co
Gostee (J R) Co
Grote Mfg Co
Grote Mfg Co Grote Mfg Co MALL-MACK CO Hamilton Metal Products Co Harris Inc Hess Warming & Ventilating Co Holley (L. E)
Houston Blow Pipe & Sheet Metal Works
10EAL CASINET CORP DES LAURIERS COLUNN MOULD CO
Kinnon Pine Mills Co
Konpe & Vogt Mig Co
LAWSON (F N) CO
Marchand (A) Inc

correland (A) Inc
Marquart Millwork Co
Minahi Cabinet Div Carey (PHILIP)
MFG CS
MIRRS-GLO CABINET CS
MORGAN CO. MINES LLE CABINET CO Morton Mrg Co Morton Mrg Co National Metal-Art Mrg Co National Metal-Products Co National Mirror Works NATIONAL STEEL CABINET CO Obio Window Glass Co Packard Formsteel Corp Parker (Charles) Co Pioneer Co Porcelain Metals Corp Roach & Musser Mfg Co Rock Island Millwork Co Royal Glass Works Corp

Royal Glass Works Corp Schenck (William) & Co SELCK (WALTER E) & CO SHEPLER NFG CO Smith (E C) Mfg Corp Standard Building Products Co Standard Stamping & Perforating Co Standard Steel Cabinet Co Standard Steel Cabinet Co

Rylon Cop.
TOLEDO DESK & FIXTURE CO
TOLEDO DESK & FIXTURE CO
TOLEDO DIATE & Window Glam Co
United Metal Box Co
Universal Fabricators
Vimear Sales Co
Walters Mg Co
Western Metalcraft Ine

#### BATHROOM SCALES, BUILT-IN

Fries & Son Steel Construction & Engineer-ing Co

**BATHROOM TOILET SEATS** Bemis Mfg Co.

Reneke Cerp Brunswick-Balke-Collender Co Inc Church (C F) Mfg Co MIGGINS INC Plumbers Woodwork Co Swedish Crucible Steel Co Vogue Mfg Co

Bond Electric Corp Div Olin Industries Inc Bright Star Battery Co Bright Star Battery Co
Berges Battery Co
Berges Battery Co
SALES CERF
Faithanks Morse & Co
General Dry Batteries
Magnarews Co line
Pullo Corp
Ray-O-Vac Co
U S Electic Mg Corp Culvernal Battery Co

**BATTERY CHARGERS** GENERAL ELECTRIC CO APPARATUS DEPT

BEAD, CORNER METAL

Badger Corrugating Co BERGER MFG CO REPUBLIC STEEL CORP BOSTWICK STEEL LATH CO B & T METALS CO Bugher Mg Co CECO STEEL PRODUCTS CO Continental Supply Brothers Edwards Mfg Co losking Paper & Supply THE PROPERTY OF THE PROPERTY O Piper (H K) Mfg Co ST PAUL CORRUGATING CO Soule Steel Co STEELCRAFT MFG CO TRUSCOM STEEL CO U S Gypeum Co Wheeling Corrugating Co

BEDS. WALL BUILT-IN

American Bed & Spring Co Evansville Metal Bed Co Harris-Hub Bed & Spring Co Roll-A-Way Corp Superior Sleeprite Corp

BELLS & CHIMES, DOOR

Auth Electrical Specialty Co Bevin Gros Mfg Co Chimes Inc.
CORBIN (P & F) DIV AMERICAN HARDWARE CORP
Desgan (J C) Inc
Edwards Co Inc

Edwards Co Inc.

Edwards Co Inc.

Faraday Electric Corp
Liberty Bell Mfg Co
Mell-O-Chime & Signal Co Inc.

MATEMAL MRASS CO
MUTONE FOR CO
Rhamstine (J Thomas)
RTTFENHOSE CO INC.

RUSSELL & ENWIN MFG CO
Specif Faraday Inc.

Start Bruthers Bell Co
Trine Mfg Cop
Trine Mfg Cop
Trine Mfg Cop

BELTING, CONVEYOR

Acme Rubber Mfg. Co Boston Woren Hose & Rubber Co Cincinant Eubber Mfg. Co Cyclone Fence Div American Steel & Wire Co Dick (R & J) Co Inc Farquing (A B), Co equhar ( Goodrich (BF) Co Haiss (Geo) Mfg Co Div Pettibone Mulliken Corp
Link-Belt Co
New York Rubber Corp
Raybeston-Manhattan Inc Manhattan Rubber
Div

Prepublic Rubber Div Lee Rubber & Tire Corp Il S Rubber Co Webb Beiting Co

BELTING, LEATHER

Capen Belting & Rubber Co Chleago Belting Co Fisher Leather Belting Co Southern Belting Co Western Rawhide & Belting Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

**BELTING, TRANSMISSION** 

Acme Rubber Mfg Co
Bay State Belting Co
Cincinnati Rubber Mfg Co
Ciark (Victor B) Belting Co
Dick (R & J) Co urkee-Aiwood Co loodall Rubber Co loodrich (BF) Co loodrich Tire & Rubber Co leaton & Knight Co leadow (Edward R) Co Ladeu (Edward B) Co Page Belting Co Raybestos-Manhattan Inc Bepublic Bubber Dir Lee Rubber & Tire Corp Schieren (Chas A) Co Unjon Rubber & Asbestos Co U S Rubber Co

BELTS, \*\*V\*\*\*

ALLIS-CHALMERS WFG CO
Broadway Rubber Mfg CO
Chicago Rewhite Mfg CO
Dayton Raiber Mfg CO
Dayton Raiber Mfg CO
Drive-Atwood Co
Firestone Industrial Products CO
Goodfrict (B F) CO
Raybesdow-Manhattan Inc Manhattan Rubber Div Republic Rubber Div Lee Rubber & Tire Corp Rockwood Mfg Co

US Rubber Co
WALKER TURNER CO INC REARNEY &
TRECKER CORP
Webb Belting & Supply Co

**BENCHES, WASH TUB** 

Berg (John) Mfg Co Holland Ladder & Mfg Co Howard Mfg Co Wells (Frank B) Co Woodenware Products Corp

**▶ BEVELS** DISSTON (NENRY) & SENS INC. Lufkin Bule Co Southington Hardware Mfg Co STANLEY TOOLS DIV STANLEY WORKS Starrett (L S) Co

BINDERS, LOAD

Advance Car Mover Co American Logging Tool Co Durbin-Dureo Leach Co Norris Brothers Renco Stacy (Eugene C)

BINDING, LINOLEUM & OIL CLOTH

ALLMETAL WEATHERSTRIP CO B & T METALS CO CENTRAL METAL STRIP CO scorite Inc Kinkead Industries Inc MACKLANBURG-DUWCAN CO Metal Trims Inc National Metal Products Co Samson Products Co Superior Plastics Div Commonwealth Plastics Inc
8 & W Moulding Co
Werner (R D) Co Inc
Youngstown Mfg Co

BINS, GRAIN, PORTABLE

Beatrice Steel Tank Mfg Co Illinois Wire & Mfg Co

BINS, HARDWARE F SITUS, TIANUTUANE.

REAGER MFG CO REPUBLIC STEEL CORP

Deluxe Metal Furniture Co

Friek-Gallagher Mfg Co

Relier (W. C.) & Consists Co

Lyon Metal Products Co

Precision Equipment Co

Service Parts Systems Stackhin Corp Universal Steel Equipment Corp Warren (J D) Mfg Co

BINS, MATERIAL STORAGE,

Tow Tank Co Inc Blaw-Knox Co BRAINARD STEEL CO Brower Mfg Co CONSTRUCTION MACHINERY CO

lecatur Iron & Steel Computer Mill Mfg Co dwards Mfg Co rie Steel Coust Co crie Steel Const Co cans Products Co leming Mfg Co Courted Conveyor & Mig Co Guiferd Wood Co Heister Steven & From & Iron Co Houston Elsew Pine & Sheet Metal Works Hilmon Wire & Mig Co Johnson (C 8) Co Kalamazoo Tank & Silo Co Lyon Metal Products Lyon Metal Products Metal Courte Co Metal Courte Courte Courte Co Metal Courte Court

Red Tiger Products Inc REYNOLDS METALS CO BUILDING PRODS Richmond Engineering Co Inc. Sioux Steel Co.

STEELCRAFT MFG CO

#### BINS, NAIL

BERGER MFG DIV REPUBLIC STEEL COMP Deluxe Metal Furniture Co Equipto Div Autors Equipment Co Friek-Gallagher Mfg Co Heller (W C) & Co Red Tiger Products Inc ST PAUL CORRUGATING CO

Universal Equipment Co Warren (J D) Mfg Co

#### BITS, AUGER

Taylor-Gjede Co

Clark (Robert H Crescent Tool Co Greenlee Tool Co et H) Co Brune Tools Div Irwin Auger Bit Co Millers Falls Co Peck Stop & Wilcox Co STANLEY TOOLS DIV STANLEY WORKS

#### BITS, COUNTERSINK

teel Products Corn STANLEY TOOLS DIV STANLEY WORKS Vaughan & Bushnell Mfg Co

#### BITS, DRILL

International Twist Drill Corp New England Carbide Tool Co Inc.

#### BITS, GIMLETS

Denne (E W) Co Greenlee Tool Co Die Greenlee Bros & Co Mephisto Tool Co Inc Prek Stow & Wilcox Co SYANLEY WORKS

#### BITS, SAW

Atkins (E C) & Co Corley Mfg Co Hoe (R) & Co Inc SIMONDS SAW & STEEL CO Southern Saw Works Vates-American Machine Co

#### **▶ BLACKBOARD**

New York Standard Blackboard Co Inc.

#### BLADES, SAW, HACK, ETC. BRADFORD MACHINE TOOL CO

Clemson Bros Inc Forsberg Mfg Co International Twist Drill Corp FTI Inc Victor Saw Works Inc.

#### BLASTERS, SAND

American Wheelahrator & Equipment Co Macleod Co Paasche Airbrush Co

#### BLINDS, VENETIAN

Agee Venetian Blind Co Arteraft Venetian Blind Mg Co Arteraft Venetian Blind Mg Co Arter-Green Corp Artiste Venetian Blind Co Blib Venetian Blind Co Blib Venetian Blind Co Chicago Venetian Blind Co Chicago Venetian Blind Co Clark & Hammer Juc Cliffon Mg Co Clopay Corp Columbia Mills Inc Consolidated Veneti etian Blind Co. Crawford-Austin Mfg Co Eastern Machine Products Co Eastern Venetian Blind Co

Ellis Venetian Blind Co Flint Venetian Blind Mfg Co Hettrick (W E) & Son Co HOUGH SHADE CORP HUNTER DOUGLAS CORP

NOVER DUCKAS CORP NUETER DUCKAS CORP WATER OF THE STATE OF THE STATE OF THE STATE MARY Venetian Blind Co MARY Venetian Blind Co MARY Venetian Blinds Inc. MARY Venetian Blinds Inc. MARY Venetian Blind Co Rock Island Milbork Co ROLSCREEN CO SON Verikal Blind Co Coure venetian Blind Co Vonce Venetian Blind Co Vonce Venetian Blind Co Variety Industries

### BLINDS, VENETIAN, OUT-

Clearview Lauver Window Co Outside Venetian Blind Co Div Tasco Co

#### BLOCKS, BRICK-FACED

National Brie Block Co

**BLOCKS, HEAT INSULATING** OWENS-ILLINOIS GLASS CO KAYLO DIV

#### BLOCKS, PLASTIC

Blovolite Co of America Div Hachmeister Inc. Columbia Protektosite Co Inc.

### BLOCKS, STRUCTURAL, IN-

OWENS-ILLINOIS GLASS CO KAYLO DIV

#### BLOCKS, TACKLE

American Hoist & Derrick Co Clyde Iron Works Inc Lanebro Mfg Co Inc Ney Mfg Co Cross-Walton Co Washington Iron Works Western Block Co

#### **BLOWERS, AIR**

CHELSA FAN & BLOWER CO Hartzell Propeller Fan Co HOMELITE CORP NOMELITE CORP Homer Furnace & Foundry Corp International Heater Co Lennox Furnace Co Nelson (Herman) Corp Trane Co Une Ventilator Co Utility Appliance Corp

#### **BLOWERS, FURNACE**

American Blower Co Autowent Fan & Blower Co Clarage Fan Co Dayton Electric Mfg Co Emerson Electric Mfg Co Ilig Electric Ventilating Co IIG Electric Ver LAU BLOWER CO MAJESTIC CO Nelson (Herman) Corp. Victor Electric Products Co.

#### **BLOWERS, INSULATION**

General Blower Co Quality Materials Co United States Rock Wool Co Universal Insulating Co

### **▶ BLOWERS, PORTABLE, ELEC-**

SKILSAW INC

#### **BLOWERS, SAW & PLANING** MILL

FILL
Allington & Cuttis Mfg Co
Champion Blower & Forge Co
Chare Turthus Mfg Co
Clarage Fan Co
Clarage Fan Co
Clarage Fan Co
House Fan Co
Large Fan Co
Large Ran Co
Large Ran Co
Large Ran Co
Large Ran Mfg Co
Co
Clarage Ran Mfg Co
Clarage Ran Ohio Blow Pipe Co St Louis Blow Pipe & Heater Co

#### BOARDS, BULLETIN

e Bulletin & Directory Board Corp

#### BOARDS, DRAFTING

Hamilton Mfg Co KEUFFEL & ESSER CO WHITE (DAVID) CO

#### **BOARDS, GLASS CUTTING**

Lufkin Bule Co Marvel Back Mfg Co RED DEVIL TOOLS

ommer & Maca Glass Machinery Co latter Mfg Co latter (J D) Mfg Co

#### **BOATS**

Aluma Craft Boat Co Dillabaugh (C B) Boat Co MIGGINS INC Kalamazoo Canvas Boat Co Southwest Mfg Co Winnter Mfg Co

#### **BOILERS, COPPER RANGE**

#### BOILERS, RANGE, GALVAN-IZED IRON

CASE (W A) & SON MFG CO Combustion Engineering Superlocator Inc Hedges-Walsh-Weldner Div Combustion Engi-neering Superleaser Inc Heller-Aller Co Scaafe Co

### BOILERS, STEAM & HOT

ALDRICH CO DIV BREEZE CORP INC AMERICAN RADIATOR & STANDARD SANI-TARY CORP Brownell Co BRYANT MEATER CO BURNHAM CORP Cleveland Steel Products Co Taridheet Div CRANE CO DELCO APPLIANCE DIV GENERAL MOTORS CORP Dewey-Shepard Boiler Co

Deury-Shepada Boller Co
Fitzglifous Boller Co Alix CONDITIONBEAUTIES CONTINUE OF ALIX CONDITIONBEAUTIES CO.
Gilbert & Barber Mig Co.
Hedges Walsh Weddoor Co.
Heif Company
Loternational Rector Co.
Loternational Rector Co.
A Standard Sanitary Corp.
BEBULER 20

Kewance Boiler Corp Div & Standard Sanitary Corp #BHLER 20 Lookout Boiler & Mfg Co Monroe E & Sons Mfg Corp #ATIONAL RADIATOR CO

Bilux Co Pena Boiler & Burner Mfg Corp Petroleum Heat & Power Co HIST Automatic Oil Burnet Corp. mith (A 0) Corp-mith (H B) Co Spencer-Lycoming Div-Avro Mfg Corp SURFACE COMBUSTION CORP

WATERFILM BOILERS INC.

Wayne Home Ed Weil-McLain Co York-Shipley Inc.

#### **BOLTS & NUTS**

ADAMS-RITE MFG CO ALLITH-PROUTY INC CASEMENT HARDWARE CO CHASE BRASS & COPPER CO lark Brothers Bolt Co It clumbia Nut & Bolt Co clumbus Bolt Works Co continental Screw Co Continental Serve Co
CORBIN (P & F) DIV AMERICAN HARDWARE CORP

WARE CORP
Decatur Iron & Steel Co
Eagle Lock Co
Eleo Tool & Screw Corp Fiwale Equipment Mfg Co FRANTZ MFG CO Gensco Tool Div General Steel Warehouse Co

Genseo Tool Di Inc Griffin Mfg Co Grip Nut Co Hashell (Wm H) Mfg Co

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# Hubbard & Co Ivez (H B) Co Lamson & Sessions Co Lewis Rolt & Nut Co LOCKWOOD HARDWARE MFG CO Maryland Bolt & Nut Co McKinney Mfg Co NATIONAL BRASS CO NATIONAL LOCK CO NATIONAL LOCK CO NATIONAL MFG CO NATIONAL MFG CO NATIONAL MFG CO Parker (S) Hardware Mfg Corp Parker (S) Hardware Mfg Corp Peron Hardware Corp Reading Hardware Corp Research Corp

STANLEY WORKS Star Expansion Starline Inc Sterling Bolt Co oducts Co Inc.

#### **BOLTS, EXPANSION**

Chicago Expansion Bolt Co CORBIN (P & F) DIV AMERICAN HARD-WARE CHRP WARE CHIP
Holds Industries Ine
Pather Co
Parter 18
How Mr. Corp
Parter 18
HOW Mr. Corp
ROSELL & ERWIN DIV THE AMERICAN
HOWE CORP
STATE EXTRACTION DAY Star Expansion Products Co Inc Stronghold Screw Products Inc U S Expansion Bolt Co

#### **BOLTS, STRUCTURAL**

Ackerman-Johnson Co Arro Expansion Bolt Co Chicago Expansion Bolt Co Decator Iron & Steel Co Diamond Expansion Bolt Co Engman Mfg Co Holob Industries Inc Mally Corp MOORE (GOODLOE E) CO PAINE COMPANY PAINE COMPANY
POIIS (4) D) Mfg Co
Rawlping Co Inc
Star Expansion Bolt Co
Star Expansion Bolt Co
Stronghold Serew Product Inc
U S Expansion Bolt Co
Williams Form Engineering Coi ering Corp

#### BOLTS, TOGGLE

Ackerman-Johnson Co Arro Expansion Bolt Co Carpenter & Patterson Inc Chicago Expansion Bolt Co PAINE COMPANY Star Expansion Products Co Inc United Screw & Boit Corp

#### BOLTS, "U"

Bolt & Screw Co Ruffalo Bolt Co REPUBLIC STEEL CORP

#### **BOOKS, BUILDING**

American Technical Society
BOOK SERVICE DEPT AMERICAN BUILDER
SIMMONS-BOARDMAN PUB CORP
WEREDITN PUBLISHING CORP
Wiley (John) & Sons Inc

#### **▶** BOOKS, ESTIMATING

BOOK SERVICE DEPT AMERICAN BUILDER SIMMONS-BOARDMAN PUB CORP

### BOOKS, HOUSE DESIGNS,

BOOK SERVICE DEPT AMERICAN BUILDER SIMMONS-BOARDMAN PUB CORP

#### BOOKS, LANDSCAPING SCOTT (0 M) & SONS CO

#### BOOKS, PRICE

Beniers Price Book Hestwood (Chas) R A National Plan Service

BOXES, CASH

Durham Mfg Co Erie Art Metal Co Hamilton Metal Products Co Kreamer (A) Inc Master Metal Products Merriam Mfg Co Smith (J O) Mfg Co

### BRACES, BIT & DRILLS,

Economy Mfg Co Fiwale Equipmen nt Mfg Co. Forsberg Mfg Co Millers Falls Co Peck Staw & Wilcox Co Smith (Seymour) & Son STANLEY TOOLS DIV STANLEY WORKS

#### **BRACKETS, CURTAIN**

Alto Mfg Co Bay States Stamping Co

BRACKETS, HAND RAIL CORBIN (P & F) DIV AMERICAN HARD-WARE CORP

Ives (H R) Co LOCKWOOD HARDWARE MFG CO Penn Hardware Co SARGENT & CO Skillman Hardwar dware Co

#### BRACKETS, ROOF

AMETICAN LADDER CO. ARTCRAFT GRNAMENTAL IRON CO. Relain Mfg Co
CINCINATI INON FENCE CO INC
CUNTIS COMPANIES INC
Fint (A W) Co
Holm's Mfg Co of Ohio
Marvel Equipment Co
Parfor (8) Howe Mfg Corp
Patton (N E) Co
Reser Mfg Co Rugg Mfg Co STANLEY WORKS Tiller (John 8) Ladders Co Inc WAGNER MFG CO

#### **▶** BRACKETS, SAWHORSE

(A G) & Co Inc Packing Co N MFG CO HAVEN STAMPED PRODUCTS CO Larmon (Charles O) Co M & M Wire Clamp Co Panellit Displays Inc

#### BRACKETS, SHELF terican Cabinet Hardware Co

Autopre Co
Busch (A C) & Co Inc
CORBIN (P & F) DIV AMERICAN MARDFRANCO BEFG DIV FALLS STAMPING &
WELDING CO
FRANTZ MFG CO
Garden City Plating & Mfg Co
Genero Tool Div General Warehouse Co Inc
Genero Tool Div General Warehouse Co Inc Genso Yool Div General Walled Griffin Mig Co MAGER (C) & SON MINGE CO Heller (W C) Co Knape & Vogt Mig Co Larson (Chas O) Co MACKLANBURG-DUNCAN CB MAKKIMANBURLOUNCAN CB
MIAMI CONTROL BIV CAREV (PHILIP)
MIAMI CBBINET DIV CAREV (PHILIP)
MATIGNAL BRASS CO
NATIONAL BRASS CO
NATIONAL MFG CO
Parker (S) Hore Mfg Corp
Redector Hardwar Corp
RUSSEL & ERWIN MFG CO
SANGENT & C Slaymaker Lock Co STANLEY WORKS Wilmac Metal Pro-

#### BRACKETS, SINK

American Foundry & Mfg Co Griffin Mfg Co Modern Iron Works Penn Hardware Co Scovill Mfg Co STANLEY WORKS

#### BRACKETS, STUD

Fiwale Equipment Mfg Co WAGNER MFG CO

BRACKETS, WALL
CREEN (P & F) DIV AMERICAN HARDFins (A W) Co
Heller (W C) & Co
Les (H R) Co
Marvel Equipment to Marvel Equipment Co Parker (S) Howe Mfg Corp Pass & Seymour Inc

Standard Bronze Co
Superior Plastice Div Commonwealth Plastics
Inc
Valley Metal Products
Warron (J D) Mfg Co
Adde Clay Product Co
Adde Cray Product Co

#### BRASS & COPPER, SHAPES

American Brass Co Anaconda Sales Co CHASE BRASS & COPPER CO (H B) Mfg Co Cartridge Co Div Olin Industries

#### BRICK, ACID-PROOF

Acme Brick Co Alliance Clay Products Co Sauereisen Cements Co Streater Brick Co SUMMITVILLE FACE BRICK CO U S Stoneware Co Washington Brick & Lime Co

#### BRICK, COMMON

Abilene Brick Co Acme Brick Co Acme Shale Brick Co Ada Brick Co Adel Clay Products Co Alabama Clay Products Co Alahama Clay Products Co
Allaine Erick Products Co
Allaine Erick Co
Beacon Brick Co
Bridges ater Brick Co
Bridges ater Brick Co
Bridges ater Brick Co
Bash tw Gi & Co
Columbia Brick Co
Bash tw Gi & Co
Columbia Brick Co
Lorent Brick Co
Lorent Brick Co
Columbia Brick Co
Lorent Brick Co
Lo

#### **BRICK DISPLAY CABINETS**

Equipto Div Aurora Equipment Co

#### BRICK, ENAMELED

Acme Brick Co Arketex Ceramic Corp Clayeraft Co Clayeraft Co
Hanley Co
Hydraulic Press Brick Co
National Fireproofing Co
Stark Brick Co
Washington Brick & Lime Co

Acme Brick Co
Ada Brick Co
Ada Brick Co
Adal Clay Products Co
Alabama Clay Products Co
Alabama Clay Products Co
Alabama Stalk Trading Corp
Asin Brick Co
Buigtamton Brick
Buigtamton Brick Bowerston Shale Co Brooks Brick Co Brooks Brick Co Bush (W G) & Co Chehalis Brick & Tile Co Chiego Fire Brick Co Clayeraft Co Colonial Clay Products Co Columbia Brick Works Concord Brick Co Clayeraft. Co
Colonial Clay Products Co
Colonial Clay Products Co
Columbia Brick Works
Concord Brick Co
Crayeroft Brick Co
Crayeroft Brick Co
Denselly Brick Co
Dourselly Brick Co
Dourselly Brick Co
Elgin-Butler Brick Co
Ecans Brick Co
Ecans Brick Co
Ecans Brick Co
Erans Brick Co
Erans Brick Co
Frederick Co
Frederick Brick Tile Co
Frederick Brick Works
Coffing Brick Ko
Co Frame Recognic merica. A file Frame Recognic to the Works Gaffuny Brick Co General Shale Products Corporated Shale Products Continued Brick Works Hanneck Brick & The Co Hattenston Brick Works Hocking Valley Brick Go Humboldt Brick & This Co International Brick Co International Brick Co Internate Brick Co International Brick Co Internation Brick & The Co Metropolitan Pasing Brick Co Metropolitan Pasing Brick Co Guerlet Clay Products Co Geden Pressed Brick & Tile Co International Brick Co University of the Product Co Geden Pressed Brick & Tile Co Internation Pasing Brick Co Busington Products Inc. Sealon Produc Purington Paving Brick Co
Redneld Brick & Tile Co
Reanole Webster Brick Co Loc
Sealenn Products line
For Sealenn Products line
For Sealenn Products line
Southern Brick & Tile Co
Southern Brick & Tile Co
Southern Brick & Tile Co
Southern Brick & Tile Cor
Standard Brick & Tile Corp
Stone Creek Brick
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Standard Brick & Tile Corp
Stone Creek Brick
Co
SUBBLITVILLE FACE SRICK CO
FUNDATION BRICK CO
FUNDATION BRICK
FUNDATION SUBMITVILLE FACE SMICK CO
Truin City Brick Co
Truin City Brick Co
Verdigris Valley Vitzified Itale Co
Washington Brick & Linne Co
West Virginia Brick Co
Western Brick Co
Western Brick Co
Western Brick Supply Co
Windows Co
Yankee Hill Brick Mfg Co

#### BRICK, FIRE

Acme Brick Co ARMSTRONG CORK CO Rabonek & Wilcox Co abcock & Wilcox Co bleago Fire Brick Co lay City Pipe Co columbia Brick Works Columbia Brick Warks
Commonwealth Plasties Inc
Curtis Mfg & Asbestos Co
Descre Fire Clay Co
Dixie Fire Brick Co
General Refractories Co
Green (A P) Fire Brick Co
Green (A P) Fire Brick Co
Harbison-Walker Refractories Co
Halo Fire Brick & Clay Co
JOHNS-MANVILLE CORP
Laclede-Christy Co Laclede-Christy Co Louisville Fire Brick Works Mexico Refractories Co North American Refractories Co Norton Co Owensboro Sewer Pipe Co Inc Plibrico Jointless Firebrick Co Pyro Clay Products Co Pyro Cap Products Co Robinson Clay Product Co Scaboard Refractories Co Sheffield Brick & Tile Co Superior Plastics Div Commonwealth Plan-Sheffer.
Superior Plantics Inc.
tics Inc.
wire Clay Co.
fories ties Inc Utah Fire Clay Co Walsh Refractories Corp Washington Brick & Lime Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

active Brick Co
Arberts Verman Tile Co
Arberts Verman Tile Co
Binghamton Brick Co Inc
Cambria Clay Products Co
Cageraff Co Pipe & Clay Co
Engin-Butler Brick Co
Harles Co
Harles Press Brick Co
Micropolitant Paving Mitch Co
Stark Brick Co
Washs Brick Co

#### **BRICK, NORMAN & ROMAN**

Acms Brick Co
Adel Clay Products Co
Beldon Brick Co
Builders Brick Co
Chatham Brick Co
Chebalis Brick & Tile Co
Clastraft Co Clayeraft Co Columbia Brick Works Columbia Brick Warks
Consolidated Brick Co
Hanley Co
Hanley Co
Hanley Co
Hanley Co
Hanley Co
Hanley Co
Kendrick Brick & Tile Co
Kendrick Brick & Tile Co
Kendrick Brick & Tile Co
Kraftile Co
Malvern Clay Products Co
Malvern Clay Co
Metropolitan Brick Paving Co
Midland Brick Co Midland Brick Co NATIONAL FIREPROOFING CO Steridan Press Brick & Tile of Standard Clay Mfg Co Washington Brick & Lime Co Wassontown Brick Co Western Clay Mfg Co Whitacre-Greef Fireproofing C Yankee Hill Brick Mfg Co

#### BRICK, PAVING

Acme Brick Co Alliance Clay Products Co Hocking Valley Brick Co Metropolitan Brick Paring Co SUMMITVILLE FACE BRICK CB Washington Brick & Lime C Western Brick & Supply Co

#### BRICK, SAND LIME

Rakersfield Sandstone Brick Co Missouri Hardstone Brick Co Northern Indiana Brick Co United Cement Products Co Washington Brick & Lime Co Wisconsin Brick Corp

#### BRICK, VENEER

Alliance Clay Products Co Binghamton Brick Co Inc Frederic Co Inc Hope Brick Works Mason 2" Brick Veneer Co Western Brick & Supply Co

#### BRIDGING, STEEL

Bethlehem Steel Co Cleveland Steel Specialty Co Davin & Siehl Co Flash Bridge Co GLOVER MFG & SALES CO GREAT LAKES STEEL CORP STEAM-STEEL DIV International Steel Co JUNIOR PRO PRODUCTS CO Lanebro Mfg Co Inc Lanebro Met-Cro Specialties Co. REPUBLIC STEEL CORP Sheffield Steel Corp. Soule Steel Co Sta-Tite Inc Union Metal Mfg Co Welco Co

#### BRUSH BACKED, SANDER HEADS

Areade Mfg Div Bockwell Mfg Co-Vonnegut Moulder Corp

#### **BRUSHES, INDUSTRIAL**

Devoe & Raynolds Inc Brush Dir GOLDBLATT TOOL CO Hillinols Poster & Brush Co Milwankes Brush Mfg Co National Brush Co Oshorn Mfg Co Osborn Mfg Co PITTSBURGH PLATE GLASS CB Buddlester Co

#### BRUSHES, PAINTERS'

American Brush Mfg Co Baker Brush Co Berry Brothers Inc Devoe & Raynolds Inc DuPont (E I) de Nemours & Co Felton Sibley & Co Inc. Glidden Co

MARKWELL MFG CO INC. Parker (Ira) & Sons Co PITTSBURGH PLATE GLASS CO BRUSH DIV Plasti-Kote Co Pollock Brush Co Purdy Brush Co Pustee (J C) & Sens Rubberset Co Sherwick Sherwin-Williams Co Star Brush Mfg Co United Brush Mfrs

#### BRUSHES, PAPERHANGERS'

Baker Brush Co Devoc & Kaynolds Inc Maendler Brush Mfg Co Inc Rubberset Co Wooster Brush Co

Whiting Adams Co Wooster Brush Co

#### **BRUSHES, ROOFING**

Abesto Mfg Corp Bentzlinger Bros Chicago Brush Co Devoe & Raynolds Inc Empire Brush Works Hanlon & Goodman Co Mileauker Rush Mfg Co Pittsburgh Plate Glass Co Brush Div Purdy Brush

#### BRUSHES, WINDOW

American Brush Mfg Co Chicago Brush Co Empire Brush Works Inc Michigan Brush Mfg Co PITTSBURGH PLATE GLASS CO BRUSH DIV

#### **BUCKETS, CLAMSHELL**

Blaw-Knox Die Blaw-Knox Co Haiss (George) Mfg Co Inc Die Pettibone Mulliken Corp JAEGER MACHINE CO Jeffrey Mrg Co Johnson C 89 Co Link-Belt Co Orton Crane & Showel Co Petithone Mulliken Corp Silent Hoist & Crane Co

#### BUCKETS, CONCRETE

Blaw-Knox Div Blaw-Knox Co Haism (George) Mfg Co Inc Div Pettibone Mulliken Core MULLER MACHINERY CO INC.

#### Wheeling Corrugating Co **BUCKETS, FIRE**

Wheeling Corrugating Co.

#### **BUGGIES, LUMBER**

Rassett Industries Corley Mfg Co Cunningham Machinery Corp Electric Wheel Co Hamilton Caster & Mfg Co Nutting Truck & Caster Co

#### **BUILDINGS, METAL**

American Rridge Co Armeo Drainage & Metal Products Inc Blaw-Knox Div Blaw-Knox Co Butler Mfg Co Edwards Mfg Co General Implement International Steel Macomber Inc Mesker (George L) Steel Corp. New Helland Metals Co

Pioneer Co REYMOLDS METALS CO BUILDING PROD-UCTS DIV SULTE PAUL CORRUGATING CO Southern Klates Iron Boofing Co Southern States Iron Roofing Co STEELCRAFT MFG CO STRAM-STEEL DIV GREAT LAKES STEEL CORP TRUSCON STEEL CO UNITED STEEL FABRICATORS INC

#### BULLDOZERS

ALLIS-CHALMERS MFG CO TRACTOR DIV American Tractor C Hough (Frank G) Co LeTourneau Luli Mfg Ca Mixermobile Manufacturers
OLIVER CORP

#### **BURNERS, COAL**

Armstrong Furnace Co
Atlanta Steve Works
Eagle Store Works
Eagle Store Works
Eagle Store & Mig Co
Excelsior Store & Mig Co
General Machine Co Inc,
Iron Fireman Mig Co
Laurelton Foundry Co
Locke Store Co

MAJESTIC CO Quincy Stove Mfg Co Wayne Home Equipment Co

#### **BURNERS, COMB GAS & OIL**

National Airoil Burner Co Bay Gil Burner Co

#### **BURNERS, GAS**

ALDRICH CO DIV BREEZE CORP INC AMERICAN RADIATOR & STANDARD SANI-TANY CORP. A Tentegge Co Inc Armstrong Furnace Co Bather Gas Burner Co Bather Gas Burner Co

BATCH ME CO BRYANT MEATER DIV AFFILIATED GAS EQUIPMENT INC Century Engineering Corp Chattanooga Implement & Mfg Co Cleveland Steel Products Co Toridbeet Div COLEMAN CO CONCO ENGINEERING WORKS DIV CONKEY (H D) CO

Coronire Heating Corp NTERNATIONAL DIT BORR-Warner Corp Iron Fireman Co Iackson & Church Co Co-Z-Air Inc

Lennox Furnace Co LITTLE (H C) BURNER CO MAJESTIC CO MAJESTIC CO
NATIONAL RADIATOR CO
NATIONAL RADIATOR CO
NORGE HEAT DIV BORG-WARNER CORP
NORMAN PRODUCTS CO
ONIO FOUNDRY & MFG CO
OUNT CO

Oilux Co
Penn Boiler & Burner Mfg Co
QUEEN STOVE WORKS INC
REZNOR MFG CO
Rybolt Heater Co Simplex Oil Heating Corp SURFACE COMBUSTION CORP TEMCO INC Thatcher Furnace Co Wayne Home Equipment Co Will-Burt Co Zurn (J A) Mfg Co

#### BURNERS, OIL

Airtemp Div Chrysler Corp
ALDRICH CO DIV BREEZE CORP INC
AMERICAN RADIATOR 6 STANDARD SANITARY CORP
Anchor Div Stratton & Terstegge Co Inc
Armstrong Furnace Co
Rard Mrs.

Armstrong Furnace Co
Bard Mfg Co
Chalmers Oil Burner Co
Chrysler Corp of Aistemp Dir
Cleveland Steel Products Co
Combustioneer Div Steel Products Engineering

Combustomer Dis Steel Products Engineering CBEC Steel besteel worker (H D) CO CONSET CONSET CONSTRUCTION OF CO Franklin Oil Heating Inc GENERAL ELECTRIC CO AIR CONDITION-ING DEPT

neral Utilities Corp-rotor May Corp-lbort & Barker Mfg Corvey-Whipple Inc

Henry Furnace Co INTERNATIONAL OIL BURNER CO Iron Fireman Mfg Co

Jackson & Church JOHNSON (S T) CO Kaustine Co Rol-Master Corp Ko-Z-Air Inc Kresky Mfg Co Lennox Furnace Co LITTLE (M C) BURNER CO MAJESTIC CO MAY 061 BURNER CORN

May Oil Burner Corp National Airoil Burner Co NORGE MEAT DIV BORG-WARNER CORP Paragon Utilities Corp Penn Boiler & Burner Mfg Corp 

Thatcher Furnace C U S Machine Corp

Viking Mfg Corp Wayne Home Equipment Co Will-Burt Co Will-Burt Co Williams Oil-O-Matic Die Eureka-Williams Co York-Shipley Inc

#### **BURNERS, SAWDUST**

### **BUSINESS SYSTEMS &**

Sorvall (Ivan) Co Standard Register Co Tailman Robbins & Co Todd Co Inc UARCO Inc Victor Adding Machine Co Vistor Adding Machine Co

#### CABINETS, FIRE EQUIPMENT

Allen (W D) Mfg Co Elkhart Brass Mfg Co Exeel Metal Cabinet Co Inc General Detroit Corp Kraus (Walter S) Co Safety Fire Extinguisher Co Standard Fire Hose Co Wirt & Knox Mfg Co

#### CABINETS, HOUSEHOLD

AMERICAN CENTRAL DIV AVCO MFG CO ANGEL NOVELTY CO ATLAS PLYWOOD CORP BEAGER MFG CO DIV REPUBLIC STEEL CARR ADAMS & COLLIER CO CURTIS COMPANIES INC. Excel Metal Cabinet Co Inc Farley & Loctocher Mfg Co GENERAL ELECTRIC GO APPLIANCE & MERCHANDISE DEPT Hubeny Brothers Inc
Ideal Co
IXL Furniture Co
J-D Products Co
KITCHEN-MAID CORP

Lron Metal Products I Marquart Millwork Co Midwest Mfg Co MULLINS MFG CORP dutschler Bros tasco Wood Products Inc 'alley Mrg Co 'aragon Utilities Corp Boyalmaid Kitchen Corp Seneca Lumber & Millwork Co

Kraus (Walter 8) Co LAWSON (F N) CO LONG-BELL LUMBER CO

Spokane Sash & Door Co TRACY MFG CO Washington Steel Products Co-Whitehead Metal Products Co Inc.

#### CABLE, ELECTRIC SOIL HEAT-ING

GENERAL ELECTRIC CO APPARATUS DEPT WESTINGHOUSE ELECTRIC CORP

#### CABLE, INSULATED

AMERICAN STEEL & WIRE CO CHASE BRASS & COPPER CO
GENERAL ELECTRIC CO CONSTRUCTION
MATERIALS DEPT
OKONIE CO. Okonite Co TENNESSEE COAL INON & RAILROAD CO

#### CABLES, CRANE can Cable Div American Chain & Cable

AMERICAN STEEL & WIRE CO

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Broderick & Bascom Rope Co Fischer & Hayes Rope & Steel Co MacWhyte Co Roebling's (John A) Sons Co

#### **CALCIMINE**

Chicago Bronze & Color Works Devoe & Raynolds Inc Fox (M Ewing) Co Inc Glidden Co Fox (M EWING)
Glidden Co
Lucas (John) & Co Inc
Moore (Benjamin) & Co
Carbola Chemical Co
Muralo Co Inc NATIONAL GYPSUM CO PITTSBURGH PLATE GLASS CO Reardon Co Tamms Industries Inc. U S Kalsomine Co Wadsworth-Howland & Co Wesco Waterpaints Inc

#### CALCIUM CHLORIDE

P CALCIUM CHLORIDE

Allen UN D) Mif Co
American Cyanamid Co
Camp Chemical Co
Columbia Chemical Division Pittsburgh Plate
Glass Co
Dow Chemical Co
Horn (A C) Co
Horn (Co
Horn (A C) Co
Horn (Co
Horn (A C) Co
Horn (Co
H

#### CALCULATOR, MATERIALS & PRICE

Lawrence Engraving Service Meilicke Systems Inc Miller-Piehl Co

#### CANVAS, CANVAS PROD-UCTS

American Tent & Awning Co Astrup Co Bemis Bros Bag Co Carvas Products Co Carvas Specialty Co Clifton Mfg Co DANIELS CC R) INC Fulton Bag & Cotton Mills Johnson (J W) Co New York Drop Cloth Mfg Co Iuc Standard Awning Co Stanley (Wm W) Co Inc Troy Sunsitude Co Troy Sunshade Co Tucker Duck & Rubber Co Werner Canyas Products Co

#### CANVAS, ROOFING

Barrell (William L) Co of N Werner Canvas Products Co

#### CANVAS, WASHABLE, WALL

Astrup Co Causas Specialty Co Columbus Coated Fabrics Corp Fulton Bag & Cotton Mills Standard Coated Products Div Interchemical Corp Stanley (William W) Co Inc

#### **▶** CARPETING

Bigelow-Sanford Carpet Co Inc Hood Rubber Co Div Goodrich (BF) & Co Mohawk Carpet Mills Inc

#### CAR PULLERS

Advance Car Mover Co American Engineering Co American Hoist & Derrick Co Clyde Iron Works Inc Godfrey Conveyor Co KEWANEE MFG CO eiteit Iron ink-Belt Co floore Dry Kiln Co Iloore Dry Kiln Co Shepard Niles Crane & Hoist Corp. Silent Hoist & Crane Co Stimmel Winch Co Western Foundry Co

#### CAR PUSHERS

Franklin Equipment Co HARNISCHFEGER CORP BLIVER CORP INDUSTRIAL DIV ilent Heist & Crane Co.

#### CARRIERS, HAND, BRICK, TILE & BLOCK

Adams Co Block-Lift Co Builders Material Inc Donley Brothers Fuller Mfg Co James Mfg Co KEWANEE MFG CO Swett (A L) Iron We Vulcan Tool Mfg Co

#### CARRIERS, LUMBER

ott Mfg Corp shee Carrier Div Standard Forge & Axle Co rlinger Carrier Co Power Equipment Co. Ross Carrier Co Silent Hoist & Crane Co

#### CARTS, BARBECUE Donley Brothers

### CARTS, FIRE HOSE

Allen (W D) Mfg Co Safety Fire Extinguisher Co Wirt & Knox Mfg Co

#### CARTS, GARDEN

INLAND STEEL PRODUCTS CO Masters Planter Co National Cart Corp

#### CARTS, MATERIAL HANDLING

CONSTRUCTION MACHINERY SALES CO INLAND STEEL PRODUCTS CO Lansing Co Nutting Truck & Caster Co Inc. Service Caster & Truck Corp WORTHINGTON PUMPS & MACHINERY CORP CONSTRUCTION EAPT DIV

#### CAR UNLOADERS, HOPPER

AR UNLOADERS, HOPPER
Atlas Consegor Co
Barber-Greene Co
Barber-Greene Co
Barber-Greene Co
Bauther Bin Co
F-arrheld Routewring Co
F-arrheld Routewring Co
Godfrey Consegor Go
Godfrey Consegor Mg Co Dix Petithone MulliJeffrey Mg Co
Johnson (C S) Co
Johnson (C S) Co
Lake Shore Engineering Co
Markrup Co
Silrent Holst & Crane Co

#### CASES, BOLT & SCREW

BERGER MFG CD DIV REPUBLIC STEEL Frick-Gallagher Mfg Co Heller (W C) & Co Lyon Metal Products Inc. Warren (J D) Mfg Co

#### CASING, METAL Alabama Metal Lath Co BOSTWICK STEEL LATH CO

Cadings Inc
CCCO STEEL PRODUCTS CO
CROST STEEL PRODUCTS INC
DETROIT STEEL PRODUCTS CO
DITWALL TRIM INC
FENESTRA SUILDING PRODUCTS
Goldwill Metal Lath Co
INLAND STEEL PRODUCTS CO
STEELCRAFT WAS CO Penn Metal Co Inc TRUSCOR STEEL CO U S Grpoum Co Wollacger Steel Corp Div Actna Steel Produ Corp

#### **▶** CASTERS

Rassick Co
Colson Corp
Continental Diamond Fibre Co
Darnell Corp Ltd
Excelsion Store & Mfg Co
Fairbanks Co Fairbanks Co
Fiwale Equipment Mfg Co
Hamilton Caster & Mfg Co
Jarvis & Jarvis Inc
NATIONAL LOCK CO Nutting Truck & Caster Co )
Phoenix Caster Co Inc
Rapids-Standard Co Inc
Schriver (0 P) & Co
Service Caster & Truck Corp
Sterling Wheelbarrow Co er Co Inc

#### CAULKING COMPOUNDS

Abesto Mfg Corp American Asphalt Roof Co Anti-Hydro Waterproofing Co

Armstrong Co SALTZ (R M) & EB Barland Weatherstrip Material Co Biddle Co Briggs-Maroney Co Inc CALBAR PAINT & VARNISH CO CAREY (PHILIP) MFG CO CENTRAL METAL STRIP CO

Christy Co Inc
COLUMBIA CHEMICAL BIV PITTSBURGH
PLATE GLASS CO
Continental Asbestos & Refining Co
Dad & Lad Co
Dennis (W J) & Co

Dennis (W J) & Co Devoe & Raynolds Inc Donley Brothers Eagle-Picher Co Elliott Paint & Varnish Co Felton Sibley & Co Inc FLINTKOTE CO Fort Pitt Chem Co Gibson-Homans Co Glidden Co COLDBLATT TOOL CO Gumputtle Laboratories Horn (A C) Co Inc. JOHNS-MANVILLE CORP. Keystone Asphalt Products Landen Putty Works Lasting Products Co MACKLANBURG-DUNCAN CO MATKAY MIG CO MARSH WALL PRODUCTS INC MINNESSTA BINING & MFG CO

Minwax Co Ine
MIRACLE ADHESIVES CORP
MORE (GOODLOE E) CO
Mortell (J W) Co
Parker (Ira) & Rons
Perora Paint Co Inc Parker (17a) & Sons Pecory Paint (o Inc. Pecory Paint (o Inc. Plastic Products Co. Plastic Products Co. Quigley Co. Inc. Rametite Mig Co. Robbins Mig Co. Scalak Chemical Co. Scalast Chemical Co. Scalard Plastics Corp.

Seal-Rite Caulking Co Inc Smooth-Om My Cons Inc Spray-B-Band Co Standard Bry Wall Products Inc Stevelote Mig Co Sultivan Co Tunnes Industries Inc Tremon Mig Co Tremcon Laborates
Co Inc
Co Inc
Vital Mfg Co
WALLACE MFG CB
Wallace (W F) Cement Co

#### X-Pando Corp CAULKING, PRE-MOLDED

#### ELLINGS, METAL ARMSTRONG CORK CO BERGER MFG CO DIV REPUBLIC STEEL

CORP.
COMPO-Miracle Products Co
Continental Steel Corp.
Edwards Mfg Co
FEMESTRA BUILDING PRODUCTS FIRESIAR SUILIDAND PRODUCTS
International Sect Co
International Sect Co
Revelop METALS CO SUILDING PRODUCTS DIV
ST PAUL CORRUGATING CO
Wheeling Corrugating Co

#### CEILINGS, SUSPENDED

Lok-Products Co Sanymetal Products Inc Natlock Div

#### CEMENT, ACIDPROOF

American Fluresit Co 10HNS-MANVILLE CORP UNIVERSAL ATLAS CEMENT CO

#### ECEMENT, ANTI-BACTERIAL North American Cement Corp

#### CEMENT, ASBESTOS

Abeato Mfg Corp Acme Asbestos Covering & Flooring Ca American Asphalt Reof Co Asbestos Asphalt & Insulation Inc Borden Co Chemical Div CABEY (PHILIP) MFG EB Clinton Metallic Paint Co Curius Mfg & Asbestos Co FLIMITAGET CO

Horn (A C) Co Inc INLAND STEEL PRODUCTS CO JOHNS-MANVILLE CORP KEASDEY & MATTISON CO Lebon Co MOORE (GOODLOE E) CO

rora Paint Co Inc brico Jointless Firebrick Co Plibrico Jointless Firebrick
RUBERGID CO
RUBLING Fire Clay Co
Seaboard Plastics Corp
Standard Ambestos Mfg Co
TEXAS CO

#### CEMENT, CANVAS

rden Co Chemical Div

### CEMENT, HOUSEHOLD RE-

Boyle-Midway Inc CERTAIN-TEED PRODUCTS CORP ers Glue Co
(E 1) de Nemours & Co
i French Inc
hemical Co LePage's Inc
MACKLANBURG-BUNCAN CO
MIRACLE ADMESIVES CORP
Paisley Products Inc
Beardon Co Reardon Co Schalk Chemical Co So-Lo Works Inc Testor Chemical Co Tuttle's Tite-On Cement Co

#### EMENT, IRON

Boyer Chemical Laboratory ( Ceresit Waterproofing Corp Clark Cast Steel Cement Co Pecora Paint Co Inc Banetite Mfg Co Smeeth-On Mfg Co Sonneborn (L) Sons Inc

#### CEMENT, KEENE'S

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP NATIONAL CYPSUM CO Ohio Hydrate & Rupply Co U S Gynsum Co Woodville Lime Co

#### CEMENT, MASONRY

Alpha Portland Cement Co Calaveras Cement Co Carney Co Inc GENERAL PORTLAND CEMENT CO Letigh Portland Cement Co LONE STAR CEMENT CORP LOUISVILLE CEMENT CO MARQUETTE CEMENT MFG CO MEDUSA PORTLAND CEMENT CO MISSOURI PORTLAND CEMENT CO Missouri Portland Cement Co National Mortar and Supply Co North American Cement Corp Ohio Hydrate & Supply Co Peerless Cement Corp Pit788URGH PLATE GLASS CO Riverion Lime & Stone Co Inc Sakrete Inc Riverion Lime & Stone Co Ame Sakarte Ine Standard Lime & Stone Co Southern Cement Co TRINITY PORTLAND CEMENT DIV GEN-ERAL PORTLAND CEMENT CO

U.S. Gypsum Co UNIVERSAL ATLAS CEMENT CO Walvering Portland Cement Co

#### **CEMENT, NON-STAINING**

Borden Co Chemical Dir Leuisyville Cement 10 MEDUSA PORTLAND CEMENT CO PITTSBURGHT FATE GLASS CO TRINITY PORTLAND CEMENT DIV GEN-ERAL PORTLAND CEMENT DIV GEN-UNIVERSAL PATLAND CEMENT CO UNIVERSAL ATLAS CEMENT CO

#### **▶ CEMENT, PIPE MENDING**

Lake Chemical Co Smooth-On Mfg Co X-Pando Corp

#### CEMENT, PORTLAND

Alpha Portland Cement Co
Alh Grove Lime Portland Cement Co
Blike Diamond Cop
Grand Cop
California Portland Cement Co
Consolidated Cement Co
Commission Commission
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Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

CENERAL PORTLAND CEMENT CO Ideal Coment Co Colorado Portland Div KAISER ALUMINUM & CHEMICAL SALES

INC
Kosmon Portland Cement Co
Lehigh Portland Cement Co
Lehigh Portland Cement Co
Lene STAN CEMENT CONP
LOUISVILLE CEMENT CO
MARQUETTE CEMENT MFG CO
MERCUSA PORTLAND CEMENT CO
Missouri Portland Cement Co Pennsylvania-Dixie Cement Corp PITTSBURGH PLATE GLASS CO Southwestern Portland Cement Co SOURM SEED FORTAIN CEMERIC CO TRIMITY PORTLAND CEMERT BIV GEN-ERAL PORTLAND CEMERT CO UNIVERSAL ATLAS CEMERT CO Wolverine Portland Cement CO

#### CEMENT, PORTLAND, AIR-ENTRAINING

Alpha Portland Cement Co General Portland Cement Co LONE STAR CEMENT COMP LOUISVILLE CEMENT OF MARQUETTE CEMENT MFG CO MEDUSA PORTLAND CEMENT CO North American Coment Corp TRINITY PORTLAND CEMENT CO DIV CEN-ERAL PORTLAND CEMENT CO UNIVERSAL ATLAS CEMENT CO

#### CEMENT, PORTLAND, GRAY, WATERPROOF

Calaveras Cement Co LOUISVILLE CEMENT CO MEDUSA PORTLAND CEMENT CO PITTSBURGH PLATE GLASS CO Ntandard Lime & Stone Co Wolverine Portland Cement Co

#### CEMENT, PORTLAND, HIGH **EARLY STRENGTH**

Lehigh Portland Cement Co LONE STAR CEMENT CORP LOUISVILLE CEMENT CO MARQUETTE CEMENT MFG CO MEDUSA PORTLAND CEMENT CO Missourt Portland Cement Co PITTSBURGH PLATE GLASS CO Standard Lime & Stone Co TRINITY PORTLAND CEMENT DIV CEN-ERAL PORTLAND CEMENT CO UNIVERSAL ATLAS CEMENT CO

#### EMENT, PORTLAND, WHITE

General Portland Cement Co
DUISVILLE CEMENT CO
MEDUSA PORTLAND CEMENT CO
PITTSBURGH PLATE CLASS CO
TRIMITY PORTLAND CEMENT DIV GENERAL PORTLAND CEMENT CO
UNIVERSAL ATLAS CEMENT CO

#### CEMENT, PORTLAND, WHITE WATERPROOF

MEDUSA PORTLAND CEMENT CO PITTSBURGH PLATE GLASS CO TRINITY PORTLAND CEMENT BIV GEN-ERAL PORTLAND CEMENT CO UNIVERSAL ATLAS CEMENT CO

#### **▶** CEMENT, PREPARED MIX

#### CEMENT, REFRACTORY

Acme Brick Co
ARMSTRONG CORK CO
CAREY (PHILIP) MFG CO
Chicago Fire Brick Co
Christy Co Inc
Clay City Pipe Co
Clinton Metallic Paint Co Clinton Metallic Paint Co
Commers Glus Co
Curis Mig & Asbeston Co
Beuver Fire Clay Comment
Description Comment
Description
Des Keystone Refractories Cu Laclede-Christy Co Mexico Refractories Co North American Refractories Co Norton Co Pacific Clay Products

Preora Paint Co Inc Pilorico Jointless Firebrick Co Pilorico Jointem Firetirico Quigley Co Inc Robinson Clap Product Co Rutland Fire Clay Co Sall Mountain Co Sauscrisen Cements Co Sauscrisen Cements Co Saboard Refractories Co Standard Asbestos Mfg Co Collect (Liberative Laborator) UNIVERSAL ATLAS CEMENT CO Wilson (Grant) Inc.

#### EMENT, ROOFING

Abesto Mfg Corp Acme Asbestos Covering & Flooring Co American Asphalt Roof Co

Armstrong Co BARRETT DIV ALLIED CHEMICAL & DYE CORP BIRD 4 SON INC CAREY (PHILIP) MF4 CO CELOTEX CORP Ceresis Waterproofing Corp CERTAIN-TEED PRODUCTS CORP Clinton Metallic Paint Co-loopers Creek Chemical Corp. Curtis Mfg. & Asbestos Co-Dad & Lad Co-Devoe & Raynolds Inc. Donley Brathers Elliott Paint & Varnish Co-FLINTROTE CO-Ford Roofing Products Co Gibson-Homans Co Gibson-Homans Co Gibbe Paint Works Inc Harrison Paint & Varnish Co ducts Co HOTO (A C) CO INC INLAND STEEL PRODUCTS CO JOHNS-MANVILLE CORP KEASBEY & MATTISON CO

Roppers Courts Inc
Pabes Products Inc
Pabes Products Inc
PitysBURCH PLAYE GLASS CO
RUTLAND THE CO
RUTLAND FIRST COReaboard Pisatics Corp
Serviciand Products Corp
Serviciand Products Corp
Serviciand Products Corp rricised Products Corp inneborn (L) & Sons Inc selecte Mfg Co ilivan Co

Sullivan Co
TEXAS CO
Truscon Laboratories Div Devoe & Raynolds
Inc ed Gilsonite Laboratories s Gypsum Co 8 Gypsum Co censter (W F) Cement Co

CEMENT, RUBBER

Alabastine Paint Prods Div Chicago Bronze & Color Works a Color Works
forden Co Chemical this
frondway Rubber Mfg Co
frescent Products Co
foodrich (B F) Co
founds (H B Fred)
for Stik Mfg Co
frage's Inc.
functors Minister National Starch

de Page's Ired 64
Minnessta Mining & Mfg. CoMinnessta Mining & Mfg. CoMinacle Abhissives Comp
National Composition Dis Nat
Products Inc.
Praister Freducts Inc.
Faise Products Inc.
Faise Products Inc.
Faise Products Inc.
Faise Products Inc.
Faise Mining Products Inc.
Research 19th Palaisty Products Inc. Union Bubber & Ashestos Co.

S PLVW000 COMP
U 8 Rubber Co
Webster (W F) Cement Co
Williams Products Co Inc

#### CEMENT, TILE American Olean Tile Co ARMSTRONG CORK CO

Borden Co Chemic Boyle-Midway Inc Diewood Co Hayes Adhesives Co MARSH WALL PRODUCTS INC MEDUSA PORTLAND CEMENT CO Minnesota Mining & Mig Co MIRACLE ADHESIVES CORP MORE (CODOLDE E) PRESTILE MFG CO Rearon to
Schalk Chemical Co
SELCK (WALTER E) & CO
Standard Paste & Glue Co
Steelecte Mfg Co
Superior Plastics Div Commonwealth Plastics Tilette Cement Co Inc WALLACE MFG CO Williams Products Co Inc X-Pando Corp

#### CEMENT, WALLBOARD JOINT

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP MIRACLE ADMESIVES CORP NATIONAL CYPSUM CO PITTSBURGN PLATE GLASS CO

U S Gypenim Co Wesen Waterpaints Inc.

#### **EXAMPLE 2** CEMENT, WATERPROOFING

Adensite Co American Fluresit Co Anti-Hydro Waterproofing Co Armor Lab Inc. BARRETT DIV ALLIED CHEMICAL & DYE.

Ceresti Waterproofing Corp Chicago Brouse & Color Works Du Pont (E I) do Nemours & Co Inc Firestone Tire & Rubber Co FLINTKRIE CO GENERAL PORTLAND CEMENT CO IONNS-MANVILLE CORP o educto Co Inc Lehon Co LOUISVILLE CEMENT CO MARSH WALL PRODUCTS INC MEDUSA PORTLAND CEMENT CO MIRACLE ADMESIVES CORP

NATIONAL GUART Products Inc
Pecers Paint Co Inc
Rametile Mig Co
Scalcon Products Inc
Sendton Products Inc
Standard Dry Wall Products Inc
Standard Dry Wall Products Inc
Standard Co
Sullivan Co Tanums Industries Inc TEXAS CO Tuch Brother

Toch Brothers Inc Truscon Laboratories Div Devoe & Raynolds Inc Webb Products Co Inc X Pando Corp

#### CESSPOOL PLATES

Vestal Stove Co.

#### **CHAINS**

American Cable Div American Chain & Cable Co Cable 10s American
Cable 10s againg Two Co
Cable 10s againg Two Co
Bridayout Chain & Mig Co
Chain Belt Co
Chain Belt Co
Chain Belt Co
Chain Belt Co
Chain May Co
Columbias Meklimon Chain Corp
International Chain & Mig Co
Jeffrey Mig Co
Milterative Hay Tool Co
Moline Iron Works
Moline Iron Works
American
Co
Peerless Chain Co
Peerless Chain Co
Peerless Chain Co
Peerless Chain Co Renco Ryerson (Joseph T) & Son Taylor (S G) Chain Co Western Chain Co

#### CHAINS, CONVEYOR

idgeport Chain & Cable Co Inc idgeport Chain & Mfg Co mpbell Chain Co ain Belt Co vecland Chain & Mfg Co slumbus McKinnon Chain Corp Diamond Chain Co Inc Howell (R R) Co Link-Bett Co Taylor (S G) Chain Co Western Chain Co Western Foundry Co Wheland Co

#### CHAINS, SASH

American Chain & Cable Co Inc Bridgeport Chain & Mfg Co CHASE BRASS & COPPER CO Cleveland Chain & Mfg Co CORBIN (P & F) DIV AMERICAN HARD-WARE CORP Hodell Chain Co LOCKWOOD HARDWARE MFG CD

TURNER & SEYMOUR MFG CO Western Chain Co Western Foundry Co

#### CHALK LINES

FUNDAM LINES

Carpenter (George B) & Co
Carpenter (George B) & Co
Carpenter (George B) & Co
Cleveland Mill & Power Co
Globaland Mill & Power Co
Globalant TOOL CO
GRADAM CORN II & Co
Purtun Cordape Mills Inc
Exceler Mrg Co
SAMSOM CONDACT WINES

TURNET & Namoon Co
Warner Mrg Co
Warner Mrg Co

### CHESTS, CLOTHES STORAGE

#### CHIMNEY CAPS

Aeme Brick Co Adams Co Adams Co Adams Co American Vikrified Products Co Bowerston Shale Co Canneiton Swere Pipe Co Inc Cyclone Mfg Co Dicker (W 8) Clar Mfg Co Evans Pipe Co Houston Blow Pipe & Sheet Metal Works Iwan Bros Inc
MAJESTIC CO
MAJECKIEF Furnace Co
NATIONAL CLAY PIPE MFRS INC
Northwest Metal Products Inc
Northwestern Terra Cotta Co Pacific Clay Products Penn Supply & Metal Corp Penn Supply & mass supply & mass supply & mass supply for the works Robinson Clay Product Co Robinson & Sons Sewer Pipe Co Stellus Foundry Co Stillwater Clay Products Co Streator Drain Tile Co What Cheer Clay Products Co What Cheer Clay Products Co

#### CHIMNEY CLEANING COM-**POUNDS**

Coughlan (G N) Co

#### CHISELS

American Swiss File & Tool Co. Barcalo Mfg Co. Bridgeport. Hardware Mfg Corp. Chattpion-De Arment Tool Co. Cincinnati Tool Co. Civeland Steel Tool Co. Damascus Steel Products Corp. Dalmascus Tool Steel Corp. Damascus Steel Products Corp
Belaware Tool Steel Corp
DISSTON (HENRY) & SONS INC
Fairmount Tool & Forging Co
Fuller Tool Co
Gensec Tool Div General Steel Warehouse Co
GOLDBLATT TOOL CO GALDRLATT TOOL CE
Greenlee Tool Ce
Heller Brothers
Leetonia Tool Co
Mayben Steel Products Inc
Mephisto Tool Co Inc
Millers Falts Co
Owatenna Tool Co
P & C Hand Forged Tool Co
Peck Stow & Wilcox Co
Proto Tool Co
Forger Tool
Forge Rainey-Tools STANLEY WORKS Union Hardware Co Vichek Tool Co Vuican Tool Mfg Co Wilde Drop Forge & Tool Co Winsted Edge Tool Works Woodings-Verona Tool Works

#### CHUTES, COAL

Allen Steel Products Inc. Chattanoga Implement & Mrg Co COPCO STEEL & ENGINEERING CO Donley Brothers Colonial Professional Colonial Colonial Steel Colonial Colonial Colonial Colonial Houston Blow Pine & Sheet Metal Works Leftware Mrg Colonial Co

Johnson Industries
KEWANEE MFG CO
Klauer Mfg Co Lippmann Engineering Works
MAJESTIC CO
WULLER MACHINERY CO INC Richmond Engineering Co VENTO STEEL PRODUCTS CO INC

CHUTES, DUST
AIR CONTROL PRODUCTS INC
Allen Steel Products
Allington & Curtis Mfg Co
Harris Inc
Kluegel (Ernest) & Co

### CHUTES, LAUNDRY

COPCO STEEL & ENGINEERING CO Cox (H r)
Donley Brothers
Gabriel Steel Co
Haslett Chute & Conseyer Co
manuel (Ernest) & Co MAJESTIC CO Miami Cabinet Div Cary (Philip) Mfg Co

CHUTES, RUBBISH, STEEL Haslett Chute & Conveyor Co.

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### CIRCUIT BREAKERS

Adam (Frank) Electric Co Arrow Hart & Hegeman Electric Co Bulldog Electric Products Co Federal Electric Products Co Hathaway & Co Trumball Electric Mfg Co WESTINGHOUSE ELECTRIC CORP

#### CIRCULATORS, HOT WATER HEATING SYSTEMS

BELL & GOSSETT CO THRUSH (H A) & CO

### CIRCULATORS, VENTED

Pioneer Water Heater Co Pioneer Furnace Div

#### CLAMPS, "C"

Adjustable Clamp Co Armstrong Brothers Tool Co Ratavia Clamp Co Inc Black Brothers Inc Burson Clip System Inc Carpenter & Patterson Inc Clincinnati Tool Co Cincinnati Toot vo Handy Mfg Co Littlestown Hardware & Foundry Co SARGENT & CO STRACES Alloy Metals Corp

### CLAMPS, CARPENTER STEEL

BAR
Adjustable Clamp Co
Bataria, Clamp Co
Bataria, Clamp Co
Bataria, Clamp Co
Loc
Black Brothers. Inc
Clocimati Tool Co
Ebertiand Mig Go Div Eastern Malleable Iron
Co
Hardford Clamp Co
Hardford Clamp Co
Malleable Iron Fittings Co
Procenit Hardware Mig Co
Taylor Clamps Li Mig Co

#### CLAMPS, CONCRETE CON-STRUCTION

Adjustable Clamp Co Batavia Clamp Co Cincinnati Tool Co Fischer & Hayes Rope & Steel Co M & M Wire Clamp Co Richmond Server Anchor Co Stay Expansion Products Co Ine UNIVERSAL FORM CLAMP CO Williams Form Engineering Corn

#### CLAMPS, CONDUIT & PIPE HANGING

GENERAL ELECTRIC CO CONSTRUCTION MATERIALS DEPT

#### CLAMPS, FILING

Atkins (E C) & Co DISSTON (HENRY) & SONS Hanchett Mfg Co ROCKWELL MFG CO DELTA POWER TOOL SARGENT & CO

#### CLAMPS, STEEL BRIGGS MFG CO

#### CLAMPS, WOODWORKERS'

Adjustable Clamp Co Armstrong Brothers Tool Co Batavia Clamp Co Inc Black Brothers Inc Cincinnati Tool Co Eberhard Mfg Co Div Eastern Malleable Iron Co Grand Specialties Co

Handy Mfg Co
Hartford Clamp Co
Knape & Vogt Mfg Co
Maileable Iron Fittings Co
SARGENT & CO
Starrett (L S) Co Starrett (L S) Co Taylor (James L) Mfg Co Union Tool Co

#### CLAY, FIRE

Acme Brick Co Adel Clay Products Co Adei Clay Products Co Alliance Clay Products Co Cannelton Sewer Pipe Co Chicago Fire Brick Co Dec Clay Products Co Denver Fire Clay Co Evans Pipe Co General Refractories Co Gladding McBean & Co Green (A P.) Pire Brick Co Harbison-Walher Refractories Involved Products Co Ironton Fire Brick Co
10 HMS-MANVILLE CORP
Kaul Clay Mfg Co
Laclede-Christy Co
Lehigh Sewer Pipe & Tile Co
Massillon Refractories Co Mexico Refractories Co. Mexico Befradories Co North American Befradories Co Owensboro Sewer Pipe Co Inc Pacific Clay Producta Pilbrico Jointless Firebrick Co Robinson Clay Product Co Seaboard Befractories Co Streator Paria Tile Co Streator Pari

CLEANERS, HAND

CABOT (SAMUEL) & CO INC MIRACLE ADMESIVES CORP

Speco Inc Technical Development Laboratories

#### CLEANERS, PAINT BRUSH

Bengal Co Boston Varnish Co Boston Chemical Laboratory Co Briggs-Maroney Co Inc CABOT (SAMUEL) & CO INC Christy Co Inc Cleveland Cleaner & Paste Co Commercial Solvents Corp Consumers Glue Co Coughlan (G N) Co Fuller (H B) Co Co ial Chemical Development Corp Kleen Chemical Co Meinhardt (J A) & Co Minshall Products Minshall Products Patent Cereals Co Petitione Co
PITTSBURGH PLATE GLASS CB
Portable Electric Tools Inc
RED DEVIL TOOLS Savogran Co Schalk Chemical Co Schalk Chemical Co Stellide Pronze & Paint Corp Sterling Paint & Varnish Co Tamus Industries Inc United Gilsonite Laboratories Wisconsin Laboratories Inc

#### CLEANERS, PAINT BRUSH, ELECTRIC

Nashway Mfg Co Portable Electric Tools Inc RED DEVIL TOOLS

### CLEANERS, PAINT & VAR-

Boyle-Min-Carbona Products Christy Co Inc DuPont (E I) de Nem-DuPont (E I) de Nem-comics Laboratory te Nemours & Co Gliagen Co Lowe Bron Miracle Chemical Products Co Pacific Chemical Co Patent Cereals Co Patent Cereals Co PITTSBURGH PLATE GLASS CO Procter & Savogran Co Savogran Co Schalk Chemical Co Sheffield Brouse & Paint Corp Socony-Vactum Oil Co Sullivan Co

### CLEANERS, SEPTIC TANK,

Hygenic Products Co Massachusetts Chemical Co Thomas Sanitary Products Co

### **CLIPS, BRIDGING & JOISTS,**

Rethlehem Steel Co Soule Steel Co TRUSCON STEEL CO

#### CLIPS, CONCRETE

American Expansion Bolt & Mfg Co CECO STEEL PRODUCTS CO Goldsmith Metal Lath Co Heckmann Building Products Co Merwin Mfg Co Merwin Mfg Co PETERSON PRODUCTS CO Richmond Screw Anchor Co Sommer Metalcraft Co Union Steel Producta Co Williams Form Engineering Corp Winner Industries

#### CLIPS, FLOOR

Merwin Mfg Co Penn Metal Co Inc Sommer Metaleraft Co STEELCHAFT MFG CO TRUSCON STEEL CO

## CUPS, GLAZING FOR STEEL SASH Adams Co STEEL A PRODUCTS CO STEEL A PROJECTION CO STEEL CO STEEL CO STEEL CO STEEL CO STEEL CO STEEL C

CECO STEEL PRODUCTS CO Donley Bros Co Gabriel Steel Co HAPTIS INC KEWANEE MFG CO LIBBY-OWENS-FORD GLASS CO PITTSBURGH PLATE GLASS CO Sommer Metaleraft Corp Young (L A) Spring & Wire Corp

#### CLIPS, PLASTERBOARD LATH, CEILING, ACOUSTICAL TILE

Burson Clip System Inc E & BUILDING FASTENERS CORP U S Gypsum Co

#### CLIPS, PLASTER LATH, SPRING

nn Metal Co Inc ule Steel Co S Gypsum Co

#### CLIPS, ROOFING

CECO STEEL PRODUCTS CO Goldsmith Metal Lath Co INLAND STEEL PRODUCTS CO NOVA SALES CO OILJAK Mfg Co Ryermon (Joseph T) & Sea Ryerson (Joseph T) & Sen SEAL-ALL CLIP CO

#### CLIPS, WALLBOARD & CEIL-ING TILE

E G BUILDING FASTENERS CORP INSULITE CO DIV MINNESOTA & ONTARIO PAPER CU WOOD CONVERSION CO

#### CLIPS, WIRE ROPE

American Hoist & Derrick Co AMERICAN STEEL & WIRE CO Rochling's (John A) Sons Co bebling's caons pson-Walton Co Wickwire Spencer Steel Div Colorado Fuel & Iron Corp

#### CLOCKS, TIME RECORDING

Cincinnati Time Recorder Co Service Recorder Co

#### CLOCKS, WATCHMEN'S

Chicago Watchclock Div Great Lakes Indus-tries line Detex Watchclock Corp

#### CLOSURES, FOR METAL **ROOFING & SIDING**

#### CLOTHES DRYERS

APEX-BOTATEX COTP
BENDIX HOME APPLIANCES INC DIV
AVCO MFG CORP BENUIS ACC MFG CORP
Blackstone Corp
Blackstone Corp
Blackstone Corp
Blackstone Corp
Colgate Mfg Co
Frigidaire Div General Motors Corp
GENERAL ELECTRIC CO APPLIANCE &
MERCHAROISE DEPT
MATPOINT INC
HOWARD Mfg Co
Kram: Walter 8) Co
Frence Steel Corp
Bodary Clothes Dayer Co Inc
Scientific Neward Co
TEMED INC TEMCO INC WESTINGHOUSE ELECTRIC CORP APPLI-ANCE DIV Woodenware Products Corp

#### CLOTHES LINES HOLDERS, **HOOKS & BARS**

Abel (John W)

Arme Metal Goods Mfg Ce
Bocarry Mfg Cep
Champion Hardware Ce
Celonial Bronse Ce
Jenson (E) Mfg Co
Jenson

#### CLOTHES-LINE POLES POSTS, WOOD, STEEL, IRON

Cincinnati Iron Fence Co Cople (H B) Co Donley Brother Hobe Hotmann & Barnard KEWANEE MFG CO

#### CLOTHES LINE PULLEYS

Acme Metal Goods Mfg Co Berkeley Specialties Co General Hardware Mfg Co STANLEY WORKS

#### CLOTHES LINE REELS

Columbus Plastle Products Inc Gehl Brothers Mfg Co Little Glant Products Inc Ro-Tite Mfg Co Superior Fastener Corp

### COATINGS, CONCRETE

MEDUSA PORTLAND CEMENT CO

#### COATINGS, EMULSIFIED **ASPHALT**

American Asphalt Boof Co Armstrong Cork Co Carey (Philip) MFG Co CERTAIN-TEED PRODUCTS CORP FLINTKOTE CO Horn (A C) Co Inc Lowe Brothers Spray-0-Bond Co Sullivan Co Tamms Industries Inc Tuffalt Inc

#### COATINGS, LINOLEUM

Abotto Mfg Corp Archer-Daniels Midland Co ARMSTROME CORK CO BUILDING MATERI-ALS DIV LO BUILDING MICHAEL CONTROL ALS DIV LO BUILDING MICHAEL CO Chicago Brome & Color Works Born 4.0 ° LO Inc Minemota Lineed Oil Paint Co Minemota Lineed Oil Paint Co Paint Paint Pool-Pabes Products Inc PITTSBURGH PLATE GLASS CO

Plasti-Kote Co Sherwin-Williams Co Truscon Laboratories Div Devoe & Raynolds Inc Vita-Var Co Wilbur & Williams Co

### **COATINGS, PLASTIC CORK**

### COATINGS, ROOF, ALUMINUM

& ASPHALT

Abesto Mfg Corp Aluminum Industries Inc American Asphalt Boof Co American Mairetto Co BARRETT DIV ALLIED CHEMICAL & DYE CORP
BIRD & SON INC
CAREY (PHILIP) BFG CO
CELOTEX CORP
CERTAIN-TEED PRODUCTS CORP

FLINTKOTE CO Horn (A C) Co JOHNS-MANVILLE CORP Lowe Brothers
Paben Products Inc
Plates Products Inc
Plates Brothers
RYMALDS METALS CO
RUBERBID CO
Reaboard Plantics Corp
Sheffield Bronze & Faint Corp
Sonnebort (L) & Sons Inc
Sorne-Dord CO
Sorne-Dord CO Sullivan Co

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Tremco Mfg Co United Gilsonite Laboratories U S Gresum Co Vita-Var Co Webster (W F) Cement Co

#### COATINGS, ROOF, ASBES-TOS

Devoe & Raynolds Inc

#### COATINGS, ROOF, ASPHALT beston Cevering & Flooring Co Asphalt & Insulation Inc

CALBAR PAINT & VARNISH CO CELOTEX CURP ereait Waterproofing Corp. bemical Supply Co. Dad & Lad Co bewatex Mg Corp boniep Brothers Co Empire Varush Co Glidden Co Globe Roofing Products Co Gordon (George C) Chemical Co Lastik Products Co Inc Mar-Kay Mig Co Paice Products Inc Pecora Paint Co PITTSBURGH PLATE GLASS CO Reilly Tar & Chemical Corp Soundborn (L.) Sons Inc United Gilsonite Laboratories

### COATINGS, ROOF, LIQUID,

#### COLORS, CONCRETE, MOR-TAR, PLASTER

Blue Ridge Tale Co Inc Cerenit Waterproofing Corp Chicago Bronze & Color Clinton Metallic Paint Co Clinton Mécalile Paint Course

Four (M Eving) Co Inc

Gordon (George C) Chemical Co

Horn (A C) Co Inc

MATIONAL SYPRUM CO

MATIONAL SYPRUM CO

Milistens Mineral Color Werks

Salcon Products Inc

Smith Chemical & Color Works

Smith (George B) C Chemical Color Works

Smith (George B) C Chemical Color Works

Smith (George B) C Chemical Color Chemical Color Chemical Ch Sonneborn (L) & Seas Inc Sullivan Co Tamms Industries Inc Foch Brothern Inc Truscon Laboratories Div Devoc & Reynolds Co Inc
Co Inc
Vitro Mfg Co
Vitr Washington Brick & La Wesco Waterpaints Inc Williams (C K) & Co

#### COLORS, OIL

Boston Varnish Co Chi-Namel Paint & Varnish Co Elliott Paint and Varnish Co Glidden Co Horn (A C) Co Inc Keputone Varnish Co Kepstone Varnish Co Lowe Bros Martin-Senour Co Moore (Benjamin) & Co PITTSBURGH PLATE GLASS CO Mousism Co Sewall Paint & Varnish Co Sheffield Bronze & Paint Corp Steelcote Mfg Co Truscon Laboratories Div Vita-Var Co

#### COLORS, PAINT

American Varnish Co Bengal Co Boston Varnish Co CABOY (SAMUEL) & CO ENC CABOT (SAMUEL) & CO INC.
Chicago Bronne & Color Works
Devos & Raynolds Inc.
Devos & Raynolds Inc.
Devos & Raynolds Inc.
Devos & Raynolds Inc.
Elliott Paint & Varnish Co
Elliott Paint Inc.
Devos Co
Elliott Paint Co
O'Refe Copp
O'Refe Copp
O'Refe Copp
O'Refe Copp
O'Refe Copp
O'Refe Copp rehemical Corp. Patterson-Sargent Co PITTSBURGH PLATE GLASS CO Fratt & Lambert Inc
Sherwin-Williams Co
Smith Chemical & Color Co Inc
Truscon Laboratories Div Devoc & Raynolds
Co Inc
U S Oypsum Co

#### COLUMNS, METAL

COFFMAN (R G) CO INC. Ponley Brothers
FAWSCO MFG DIV FALLS STAMPING &
WELDING CO

Hutchinson Mfg Co International Steel Co KEWAREE MFG CO Locke Mfg Co Louden Machinery Co Modern Welding Co National Tube Co

Sharon Steel Co TRUSCON STEEL CO DIV REPUBLIC STEEL

CARR ADAMS & COLLIER CO

CURTIS COMPANIES INC CURTIS COMPANIES INC Huttig Sash & Door Co M & M Woodworking Co Mutual Fir Column Co Pacific Mutual Door Co Schwerd (A F) Mfg Co Silbernagel (George) & Sons 7188ER STRUCTURES INC Washington Mfg Co

#### COMPOUNDS, AIR EN-TRAINING

Autolene Lubricants Co Spray O Bond Co

#### COMPOUNDS, ANTI-DRIP

Mortell (J W) Co Steelcote Mfg Co Tuffalt Inc Wilbur & Williams

#### COMPOUNDS, ANTI-FREEZE, CONCRETE

Anti-Hydro Waterprochag Co Flexrock Co Fart Pitt Chemical Co Hern (A C) Co Sconeborn (L) & Sons Inc Stillian Cr Sullivan Co Toch Brothers Inc.

#### COMPOUNDS, ANTI-TER-

Alesto Mfg Corp BARRETT DIV ALLIED CHEMICAL & DYE

CREE

Roper Chemical Laboratory Co

BRUCE (E L) CO

BRUCE (E L) CO

CAROT (SAMUEL) & CO INC

CA Wood Preserver Co

Carbolineum Wood Preserving Co

Coopers Creek Chemical Corp DOW CHEMICAL CO DOW CHEMICAL CO Essiek Mfg Co Forman-Ford & Co Gordon (George C) Chemical Co Hill Termite Control Systems Monsanto Chemical Co

PROTECTION PRODUCTS MFG CO

rotexal Corp eilly Tar & Chemical Corp epublic Creosoting Co ockford Paint Mfg Co ultivan Co ennessee Eastman Corp

Termitol Co Vaccinol Sales Co Wood Treating Chemical Co

COMPOUNDS, LUBRICAT-ING, DOOR, DRAWER &

WINDOW American Grease Stick Co American Oil Co Dixon (Joseph) Crucible Co Slipit Products Inc

#### COMPOUNDS, RUST PRE-**VENTING & REMOVING**

American Rust Proof to the CABOT (SAMUEL) & CO INC. GABOT (SAMURA)
Camp Chemical to
Carbostic Protective Coatings Corp
Continental Abbetons & Refining Corp
Devoe & Raynolds Inc
Du Pont (E I) de Nemours & Co
Firestone Tire & Rubbet Co
St.INTKORE CO
Rollingsbead (R M) Corp Hollinghead (R M) Corp Horn (A C) C Keystone Asphall Products Co Murney Faint Die Interebemical Corp Netson Chemical Corp Nat-Rust Chemical Corp Oakit Products Inc Parker Rustproof Co Pernegrania Sath Mig Co

PITTSBURGH PLATE GLASS CO

Presstite Engineering Co Protective Coatings Inc Puritan Chemical Co Reilly Tar & Chemical Corp Busticide Co Rusticiae Co Bustoleum Corp Simoniz Co Industrial Div Smith Oil Refining Co Sonneborn (L) Sons Inc Bldg Products Div Speco Ine
Steelcote Mfg Ca
Stop-Rust Co
TEXAS CO

TEXAS CO Toch Bros Inc Truscon Laboratories Dir Deroc & Raynolds Inc Vita-Var Corp Warber Chemical Products Co Wilbur & Williams Co X-Pande Corp

#### **▶ CONCRETE BLOCK CUBING** MACHINES

BESSER MEG CO

### CONCRETE BLOCK DRYING

BESSER MFG CO Colorcrete Industries Equipment Mfg Inc Fleming Mfg Co es Ins

#### **▶ CONCRETE BLOCK MACHINES**

Air Placement Equipment Co Anchor Concrete Machinery Co BESSER MFG CO nerete Transport Mizer Ca awford Industries un (W E) Ca nipment Engineering Co ening Mfg Co Inc ed Cement Block Machine Co neral Engines Co Inc orge (F C) Machine Co llostone Co George (F C) Machine Co
Hollostone Co
Jackson & Church Co
Kent Machine Co
Little Giant Products Inc
Mortaries Tile Machine Co Inc
Multiples Machinery Corp
Stearns Mig Co Inc
Little Giant Corp
Stearns Mig Co Inc
Little Corp
Litt

#### CONCRETE CURING COM-**POUNDS**

Adensite Co Aluminum Industries Inc American Fluresit Co In Anti-Hydro Waterproofing Anti-Hydro Waterproofing Co CALBAR PAINT & VARNISH CO amp Chemical Co
cresit Waterproofing Corp
levoe & Raynolds Inc
low Chemical Co
exercrete Corp
Pleming Mrg Co
rort Pitt Chemical Co
Elidden Co Glidden Co Hern (A C) Co Keystone Asphalt Products Co Ranetite Mfg Co Scalcon Products Inc Sealern Products Inc
SOLVAY SALES DIV ALLIED CHEMICAL &
DYE COMP
Sonneborn (L) Sons Inc
Spray-O-Bond Co
Truscon Laboratories Div Devoc & Baynolds

#### CONCRETE FORMS

ADAPTO CO Actna Plywood & Vencer Co American Steel Works Art Concrete Works Ray City Cast Stone Block Co DESSER MFG CO BESSER WFG CO
BERTHERM STATE OF COMMERCIAL SHARING IDE
DES Lauriers Column Mould Co
Fir-Tex Insulating Board Co
Fir-Tex Insulating Board Co
Goldenith Metal Lath Co
Goldenith Metal Lath Co
Irrington Form & Iron Co
Irrington Form & Iron Co
Irrington Form & Iron Co
Irrington Form & Co
Irrington Form & Iron Co
Irrington For Mecho Products Co MEDUSA PORTLAND CEMENT CO Multiplex Concrete Machinery Cerp Quinn Wire & Iron Works RGCFORM CORP SURGO PRODUCTS CO SYMONS CLAMP & MFG CO UNIVERSAL FORM CLAMP CO U.S. CYPSUM CO Zedder Concrete Products Machinery Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### CONCRETE FORM, METAL **MATERIALS**

Blaw-Knog Dir Blaw-Knog Co CECO STEEL PRODUCTS CO MECFARM CARP Myranon (Joseph T) & Son Soule Steel Co U S PLYWOOD CORP Williams Form Engineering Corp

#### CONCRETE FORM TIES

Bethlehem Steel Co
Dayton Sure-Grip & Shore Co
GATES & SAN INC
Gertard (A J) & Co
Goldsmith Metal Lath Co
M & M Wire Clamp Co lamp Co Anchor Co Richmond Serew ROCFORM CORP Sheffield Steel Corp Sommer Metalcraft Corp Star Expansion Products Inc SYMONS CLAMP 4 MFG CO UNIVERSAL FORM CLAMP Williams Form Engine Winner Industries

#### CONCRETE HARDENERS

Adensite Co American Fluresit Co Anti-Hydro Waterproofing Co Armor Laboratories cont Smelting & Refining Works Inc. Ridge Tale Co Inc. Blue Ridge Tale Co Inc
Camp Chemical Co
Celadri Corp
Ceresit Waterproofing Corp
Connelly Inc
Devoe & Raynolds Inc
Empire Varnish Co
Emeric Varnish Co
Fererete Cop
Flexrock Co
Fort Pitt Chemical Co
Harron Chemical Co
KAY TITE CO
KAY TITE CO
Smooth-Om Mft Co Somoth-On Mfg Co Sonneborn (L) & Sons Inc Spray-O-Bond Co Standard Dry Wall Products Inc Sullivan Co Tamms Industries Inc Truscon Laboratories Div Devee & Exynolds Truscon Laboratoria Inc Tufcrete Co Inc Vita-Var Co Withur & Williams

#### CONCRETE JOIST MACHINES

American Steel Works BESSER WFG CO Colorerete Industrial Lith-I-Bar Co Stearns Mfg Co Inc

#### CONCRETE MIXERS, MOR-TAR, ETC.

Barber Greene Co BESSER MFG CB Concrete Transport Mixer Co
CONSTRUCTION MACHINERY SALES CO
Dunn (W E) Mrg Co
Esslek Mrg Co Fleming Mfg Co
GILSON BROTHERS CO
GOLDBLATT TOOL CO
JAEGER MACHINE CO
Johnson (C S) Co
Knickerbocker Mfg Co Koehring Co Kwik Mix Concrete Mixer Co Lansing Co Lansing Co
Little Glant Products Ine
MULLER WACHINERY CO INC
Northwest Metal Products Ine
Pony Mixer Co
Smith (T L) Co

Stearns Mfg Co Inc. WORTHINGTON PUMP & MACHINERY CORP CONCRETE MIXERS, TRAN-

Blaw-Knox Div Blaw-Knox Co Chain Belt Co of Milwaukee Concrete Transport Mixer Co IAEGER MACHINE CO Willard Concrete Machinery Co Ltd.

#### CONCRETE PAVERS

Chain Belt Co Construction Machinery Sales Co Jaeger Machine Co Worthington Pump & Machinery Corp

CONCRETE PIPE MACHINES BESSER MFG CO

## Concrete Pipe Machinery Co Dunn (W E) MTg Co Universal Concrete Pipe Co Inc Ziedler Concrete Products Machinery Co

#### CONCRETE PLANTS, CEN-TRAL MIXING

BESSER MFG CO
Blaw-Knox Div Blaw-Knox Co
Butler Bin Co
Chain Belt Co
Concrete Transport Mixer Co
Concrete Transport Mixer Co
JAEGER MACHINE CO
JAEGER MACHINE CO Johnson (C is) to Worthington Pump & Machinery Corp

CONCRETE PLASTICIZER

#### CONCRETE PRODUCTS. PLANT MIXERS

BESSER MFG CO Blaw-Knox Div Blaw Knox Co Butler Bin Co Chain Belt Co of Milwaukee Concrete Transport Mixer Co CONSTRUCTION MACHIN Dodson Mfg Co Inc. Dunn (W E) Mfg Co Eric Steel Const Co Fleming Mfg Co Foote (J B) Foundry Co George (F C) Machine C Gilson BROTMERS CO Heltzel Steel Form & Iron Co JAEGER MACHINE CO Johnson (C 8) Co Kent Machine Co Koehrine Co MULLER MACHINERY CO INC Noble Co O K Mfg Co Smith (T L) Co Stearns Mfg Co WORTHINGTON PUMP & MACHINERY CORP

#### CONCRETE PRODUCTS PLANTS

Blaw-Knox Div Blaw-Knox Co Butler Bin Co Equipment Engineering Co Equipment Engineering Co Fleming Mfg Co George (F C) Machine Co Johnson (C S) Co chasen (C S) Co learns Mfg Co Inc

#### CONCRETE SEALERS

American Crayon Co AMERICAN FLOOR SURFACING MACHINE American Fluresit Co Atlas Mineral Products Co Claronez Products Inc

Various Products and
Ohio Akona Co
SERVICISED PRODUCTS CORP
Spray-0-Bond Co
Truscon Laboratories Div Devoe & Raynolds Co
Weson Waternaints Inc
Wilbur & Williams Co

#### CONCRETE SILO STAVE MA-CHINES BESSER MEG CO

#### CONCRETE VIBRATOR, GAS-**OLINE & ELECTRIC**

Dart Mfg & Sales Co INDEPENDENT PNEUMATIC TOOL CO Ingersoll-Rand Inc

### CONDUCTORS, TUBULAR GENERAL ELECTRIC CO CONSTRUCTION MATERIALS DEPT

CONDUIT, ASBESTOS, AIR

#### CONDUIT, FLEXIBLE

American Flexible Conduit Co AUSTIN (M B) CD Federal Electric Products Co GENERAL ELECTRIC CO CONSTRUCTION MATERIALS DEPT MATERIALS DEPT
National Electric Products Corp
Pyle-National Co
Spang-Chaifant Div National Supply Co
Triangle Conduit & Cable Co
Wiremold Co

CONDUIT, RIGID

American Brans Co AUSTIN (M B) CO CHASE BRASS & COPPER CO Conduit Pipe Products Co U S Gypsum Co

GENERAL ELECTRIC CO CONSTRUCTION
MATERIALS DEPT
JOHNS-MARVILE CORP
National Electric Products Corp
Larlett Chute & Conveyor Co
Leftrey Mig Co National Electric Products Corp Orangeburg Mfg Co Inc Porter-Rayden Companies Pyle-National Co Spang-Chalfant Div National Supply Co U S Rubber Co

CONNECTORS, ELECTRIC WIRE, CABLE

GENERAL ELECTRIC CD CONSTRUCTION MATERIALS DEPT Hubbell (Harvey) Inc

**CONVECTORS** AMERICAN RADIATOR & STANDARD SANI-TABY EGEP BURNHAM CORP CRANE CO. Fedders Quigan Co Medius Enfo Co NATIONAL RADIATOR CO Nelson (Berman) Corp Nesbitt (John J) Ing Bittling Corp Trane Co & Bailey Inc

CONVEYORS, BUCKET & FLIGHT

Utica Radiator Corp VULCAN RADIATOR CO Webster (Warren) & Co

YOUNG RADIATOR CO

Alvey-Ferguson Co Inc American Conveyor Co Atlas Conveyor Co Barber-Greene Co Baughman Mfg Co Int Baughman Mfg Co Ims
Bouworth Mfg Co Ims
Faiffeld Engineering Co
Faiffeld Engineering Co
Faiffeld Engineering Co
Faiffeld Engineering Co
Balass (George) Mfg Co Div Petithone Mulliben Corp
Hashett Unite & Conveyor Co
Hashett Unite & Conveyor Co
Hawth Chuber Jib Heulth-Boblins Inc
Howty-Parg Steel & Iron Works
Kevanee Machinery & Conveyor Co
Lake Shore Engineering Co
Lake Shore Engineering Co Lake Shore Engineering Co Lamson Corp Link-Belt Co Lippmann Engineering Works Mathews Conveyer Co MULKEY (SAM) CO Northern Conveyor Co Power-Pack Conveyors Rapids-Standard Co Inc Standard Conveyor Co Western Foundry Co Western Foundry Co

#### CONVEYORS, CHAIN LINK & CHAIN BELT

Allington & Curtis Mfg Co Chain Belt Co Cyclone Fence Div American Stoel & Wire Co Filer & Stowell Haim (George) Mfg Co Div Petithone Muln Con Jeffrey Mfg Co Lamson Corp Link-Belt Co Mathews Conveyer Co Northern Conveyor Co Stephens-Adamson Mfg Co

#### CONVEYORS, COAL TRUCK UNLOADING

American Couveyer Ca Boworth Mig Co Fairfield Engineering Co Fairfield Engineering Co Fairfield Engineering Co Blaim (George) Mig Co Div Petithone Misl-linen Corp Hercules Strel Products Corp Hervitt Rubber Dir Bewitt-Robins Inc Kewance Machinery & Conveyor Co Kewance Machinery & Conveyor Co Kewance and Conveyor Co Lake Shore Engineering Co Morrow Sales Co Power-Pack Conveyors

### CONVEYORS, GRAVITY

Allied Welding & Mfg Co Barber-Greene Co BELSAW MACHINERY CO BESSER MFG CO Blatt (Frank I) Co Inc Bonded Scale & Machine Co Brady Conveyors Corp Butler Bin Co Chain Belt Co Chase Turbine Mfg Co Corley Mfg Co Darden (Roy) Industries Inc Equipment Engineering Co Equipment Engineering to Farquhar (A B) Co Fleming Mfg Co General Conveyor & Mfg Co George (F C) Machine Co Gifford-Wood Co Jeffrey Mfg Co Johnson (C S) Co Lakesbore Engineer ering Co Lamson Corp Link-Belt Co Lippmann Engineering Works Logan Co Lyon Metal Products Inc Noble Co K Mfg Co

Rapide-Standard Co loc
Stephena-Adamson Mfg Co
Stearns Mfg Co Inc
Western Foundry Co
Wilson Saw Dir Media Machine Works Inc

COOLERS, WATER, ELECTRIC

#### CONVEYORS, GRAVITY WHEEL

Farquhar (A B) Co Lamson Corp Lippmann Engineering Works Logan Co Mathews Conveyer Co Rapids-Standard Co Inc Standard Conveyer Co Western Foundry Co

CONVEYORS, OVERHEAD

ALITH FRENTY CB
Brady Conveyors CopCleveland Transata Div Cleveland
Crane & Engineering Co
Fartfield Engineering Co
Fartfield Engineering Co
Godfrey Conveyor Co
Godfrey Conveyor Co
Hilton Comp.) Mrg Co Doy Pottlbone MalHilton Comp.)
High Cop Divide Co
Botton Cop Co
Hestit Rubber Div Hewitt-Rubbins Ine
Johnson (C S) Johnson Cop Solmon Cop Cop liken Corp With Rubber Div Hewitt-Robins Inc Johnson (C S) Co Johnson Industries Inc Johnson Industries Inc Lamson Corp. Link-Beit Co Lippinann Engineering Works Lambon Machinery Co Mathews Conveyer Co Northern Conveyor Co Northern Conveyor Co Lands Marchanded Co Inc Rapids-Standard Co Inc RICHARDS-WILCOX CO Starline, Inc Western Foundry Co Wickwire Spencer Steel Div Colorado Fuel & Inss Corp.

#### CONVEYORS. PORTABLE

BELT

BELT

ACT OF THE CONTROL OF TH Mathews Conveyer Co MULKEY (SAM) CB
Northern Conveyor Co
Power-Pack Conveyors
Ranids-Standard Co Inc
Standard Conveyor Co
Western Foundry Co
Willard Concrete Machinery Co Ltd

#### CONVEYORS, PORTABLE, GRAVITY

GRAVIII
Armor Products Corp
Boothman Mrg Co
Boothman (A: W) Co Inc
Farquint (A: B) Co
Farquint (A: B) Co
Farquint (A: B) Co
Farquint (A: B) Co
Haise (George) Mrg Co
Haise (George) Mrg Co
Haise (George) Mrg Co
Haise Corp
Basiett Chute
A Conveyor Co
Lamon Corp
Lamon Corp Islainio Addipmenta Corp.
Lana Corp.
Lana Metal Products Inc.
Mannews Convert Co.
Mathews Convert Co.
Mathews Convert Co.
Morthern Courrept Co.
Northern Courrept Co.
Rapids-Standard Co. Inc.
Rapids-Rapid

#### CONVEYORS, SLAB

Allington & Curtis Mfg Co Bartlett (C 0) & Snow Co Chain Belt Co Corinth Machinery Co Corinth Machinery Co Corley Mfg Co Cunningham Machinery Corp Filer & Stowell Co Jeffrey Mfg Co Link-Belt Co Lippman Engineering Works Rapids-Standard Co Stephens-Adamson Mfg Co Wheland Co

airtemp Div Chrysler Corp looistream Corp Doo Mfg Co Frigidaire Div General Mot Frigidaire Div General Motors Corp GENERAL ELECTRIC CO AIR CONDITIONING DEPT Haws Drinking Famert Co LAWSON (F R) CO Taylor (Halsey W) Co WESTINGHOUSE ELECTRIC CORP

COPPER STRUCTURAL SHAPES

CHASE BRASS & COPPER CO CORD. PLASTIC

NUNTER DOUGLAS CORP SAMSON CORDAGE WORKS CORD, RUBBER

GENERAL ELECTRIC CO CONSTRUCTION MATERIALS DEPT CORNICES, METAL

Berger Mfg Co Div Republic Steel Corp Edwards Mfg Co Meyer (F) & Brother Co ST PAUL CORRUGATING CO STEELCRAFT MFG CO

CORNERS, SIDING

BIRD & SON INC Bugher Mfg Co CELOTEX CORP Donley Brothers Co
Edwards Mig Co
FLINTGUTE CO
HILAMO STEEL PRODUCTS CO
HOLAMO STEEL PRODUCTS CO
HOLAMO STEEL PRODUCTS CO
HOLAMO STEEL
HOLAMO STEEL Northwest Metal Products Inc REYNOLDS METALS CO BLDG PRODUCTS

DIV ST PAUL CORRUGATING CO I) 8 Gypoum Co Wheeling Corrugating Co

#### COUNTER DISPLAY CABINETS

Actin Privod & Veneer Co American Physood Corp Colgate Mfg. Corp Products Co Equipto Div Anoras Equipment Co General Wood Works Grammes L.F. P. & Sons Inc Grames Corp. Company Co. Co. Hines (Edward) Lumber Co Kraus (Walter 8) Co. Larson (Chas 6) Co. Rraus (Watter 8) Co.
Larson (Chas O Co.
Larson (Chas O Co.
Larson Metal Products Inc.
Marvet Each Mig Co.
MosE (G800L8E E) HKC
Precision Equipment Co.
Reflector Hardware Corp.
Route Furniture Co. Inc.
Schwartz Showell Corp.
Universal Steel Equipment Corp.
Universal Steel Equipment Corp.
Warren (A D) Mig Co.

#### **COUPLINGS, FLEXIBLE** SHAFT

Brad Foote Gear Works Chain Belt Co Diamond Chain Co Inc Falk Corp. Diamond Chain to ame
Falk Corp
Link Beit Co
Lovejoy Flexible Coupling Co
Morse Chain Co

COUPLINGS, HOSE Allen (W D) Mfg Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Durst Mfg Co Ever-Tite Coupling Co Hose Accessories Co Nu-Way Coupling Co Surelock Lawn Hose Coupler Co

COUPLINGS, SPLIT GENERAL ELECTRIC CO CONSTRUCTION

COVE, MOLDED PLYWOOD Keller Products Inc UNITED STATES PLYWOOD CORP

COVERING, FABRIC WALL

Columbus Coated Fabrics Corp Standard Coated Products Div Interchemical

COVERING, PIPE, ASBESTOS

Ashestos Asphalt & Insulation Inc CAREY (PHILIP) MFG CO Curtis Mfg & Asher Ehret Magnesia Mfg Co JOHNS MANVILLE CORP KEASBEY & MATTISON CO National Advanced rabco Products Inc BUSERSID CO Sall Month Sall Mountain Co Smith & Kanzler Co Standard Asbestos Mfg Co Wilson (Grant) Inc

COVERINGS, PIPE, CLOTH Mortell (J W) Co

COVERINGS, PIPE, FIBROUS GLASS OWENS-CORNING FIRERCLAS CORP

COVERINGS, PLASTIC FOR

Allen Steel Products
BARRETT DIV ALLIED CHEMICAL & DYE COVERINGS, RESILIENT WALL

Sloane-Blabon Corp COVERINGS, WALL, WOOD-ON-CLOTH

Brasco Mfg Co

COVERINGS, VINYL PLASTIC FLOOR

SOUDYEAR TIRE & RUBBER CO FLOORING DELAWARE FLOOR PRODUCTS INC

#### COVERS, MANHOLE & CISTERN

Industrial Iron Worl MAJESTIC COMPANY

#### CRANES, OVERHEAD TRAVELING

American Bridge Co Sub of U S Steel C American Chain & Cable Co Inc Bridgeport Chain & Mig Co Chisholm Moore Hoist Corp Cleveland Trantrall Div Cleveland Trantrall Div Cleveland Crane & Engiocering Co Detroit Hoist Machine Co Electro Lift Inc Lane Mig Co Steel Corp Lane Mfg Co
Manning Maxwell & Moore Inc
Reading Chain & Block Corp
BICNARDS-WILCOX CO Shaw-Box Crane & Hoist Div Shepard Niles Crane & Moist Co

#### CRANES, POWER INDUSTRIAL

American Hoirt & Derrick Co Atlantic Transportation Co Div Yalo & Towns Mfg Co Clyde Iron Works Inc Elavili-Parker Electric Co Koehring Co Lewis-Shepar pard Products Inc Ross Carrier Co Shepard Niles Crame & Hoist Curp Silent Hoist & Crams Co

#### CRANES, TRACTOR & TRUCK

Bridgeport Chain & Mfg Co BucYAUS-ERIE CO BUCYRUS-ERIE CO Clyde Iron Works Inc Drott Mig Corp. Hyster Co Koehring Co Stimmel Winch Co Silent Hoist & Crane Co Taylor Machine Works

#### CRANES & SHOVELS. POWERED ALLIS-CHALMERS MFG CO.

Ray City Shorels Inc BUCYRUS-ERIE CO Chisholm-Moore Hoist Corp Div Columbus-BUCYBUS-EARC Corp. Div Columb McKinson Chain Corp. Charles Mackine Works Clereland Trencher Co Clyde Iron Works Inc. Comp. Mackine Works Comp. C Day-Smith Hydraulic Corp

Hughes-Keenan Co Hydrocrane Div Bucyrus-Erie Co Hyster Co AEGER MACHINE CO JAEGER MACHINE CO
Kochring Co
Link-Beit Speeder Co
Louden Harry: Co Inc
Louden Machinery Co
Martin Four Shore! Co
Michigan Power Shore! Co
Michigan Power Shore! Co
Michigan Power Shore! Co
Michigan Power Shore! Co
Office Shore! Co
Office Shore! Co

Ofton Crane & Shovel Co Gregord Co Red Tiger Products Ine Ross Carrier Co Scheidd Bantam Co Schae Bot Crane & Hoist Div Manning Max-well & Moove Ine Stlent Hoist & Crane Co Thew Shavel Co Luit Crane & Shovel Corp

#### CRAYONS, LUMBER MARKING

nerican Crayon laisdell Pencil C Crucible Div Rite-Way Mfg Co. Dixon (Joseph) Crucible Dix Rite-Eagle Pencil Co Faber-Castell (A W) Pencil Co Lufkin Rule Co Marks Co. National Crayon Co Standard Crayon Mfg Co Union Crayon Co

#### CREOSOTE

American Creasute Works Inc.

BARRETT DIV ALLIED CHEMICAL & BYE

CABOT (SAMUEL) & CO INC C-A Wood Preserver Co Parbolineum Wood Preserving Co. PITTSBURGH PLAYE GLASS CO BRUSH BIV Protecol Corp.

#### CREOSOTING PLANTS an Cressote Works Inc an Lumber & Treating Corp c Cressoting Co

American Lumber & Treating
Atlantic Cressing Co.
Baxter (J. H.) & Co.
Baxter (J. H.) & Co.
Bayter Lumber Co.
Eppinger & Rumell Co.
Frost Lumber Industries
Koppers Co.
Koppers Co.
Experiment Co.
Experim Beilly Tar & Chemical Corp SOUTHERN PINE LUMBER CO Southern Wood Properties Co West Coast Wood Preserving Co WEYERNAEUSER SALES CO

#### CRESTING & FINIALS, ROOF, SHEET METAL

BERGER MFG CO DIV REPUBLIC STEEL INLAND STEEL PRODUCTS CO enn Metal Co Inc beeling Corrugating Co

CRIBBING, WIRE AMERICAN STEEL & WIRE CO Continental Steel Corp MEVSTONE STEEL & WINE CO Mid States Steel & Wire Co. Northwestern Steel & Wire Co.

CRIBS, CORN, PORTABLE AMERICAN STEEL & WIRE CO

Beatrice Steel Tank Mfg Co Butler Mfg Co Illinois Wire & Mfg Co KEYSTONE STEEL & WIRE CO MIA.Strates Steel & Wire Co MINISTER STORMERS TO NORTHWESTERN STORMERS AND RELCO LAMINATED PRODUCTS INC Security Fence & Mfg Co Capital Fence Co Gaynor (E 8) Lumber Co Mattern Wire & Mfg Co I Nebraska Bridge Nupply & Lumber Co REYNOLDS METALS CO BUILDING PROB-

#### CRIBS, GRAIN, STEEL

Agrificst Chemical Corp Eaton Metal Products Corp Freeland Sons Co G F Mrg Co KEYSTONE STEEL & WIRE CO Lamneck Products Inc Martin Steel Products Corp Boss Equipment Co

#### CUTOUTS, TRANSFORMER ELECTRIC

GENERAL ELECTRIC CO CONSTRUCTION MATERIALS DEPT

#### CUTTERS, ADJUSTABLE, HOLE

Clark (Robert H) Co Bruno Tools Div

#### CUTTERS, ASBESTOS, CEMENT BOARD

JOHNS-MANVILLE CORP PEARSON (0) MFG CO CUTTERS, BAR

#### BLUM (IULIUS) & CO INC CUTTERS, GLASS

Barrett (William L)
Black Panther Tool Co
Fletcher-Terry Co
Glaziers' Tool Mfg Co
Heller (W C) & Co
Karelsen (Et Inc
Marvel Rack Mfg Co
Millers Falls Co
National Mirror Works
New England Carbide 2 New England Carbide Tool Co Inc PITTSBURGH PLATE GLASS CO RED DEVIL TOOLS Ridgely Trimmer Co

### **CUTTERS, INSULATION**

BIRD & SON INC Saw Mfg Co Inc. Kimball Mfg Co STANLEY TOOLS DIV STANLEY WORKS

#### **CUTTERS, LOCK CORNER**

Atkins (E.C) Co Huther Brothers Saw Mfg Co Inc Woods (S.A.) Machine Co

#### CUTTERS, MOULDING

BOICE CRANE CO MARKWELL MFE CO INC Shiper Claumer Shimer (Namura 1) & Sons Inc STANLEY ELECTRIC TOOL DIV STANLEY WORKS Taylor-Stiles & Co Woods (S A) Machine Co

#### CUTTERS, PICKET

### CUTTERS, PIPE

American Pipe Tool Co Barnes Tool Co Beaver Pipe Tool Ine International Nutry Tool Corp Toledo Pipe Threading Machine Co

#### CUTTERS, SHINGLE, ASBESTOS-CEMENT

FLINTNOTE CO
Huther Brothers Saw Mfg Co Inc
JOHNS-MANVILLE CORP
KEASEEV & MATTISON CO
Northwest Standard Products Co
Parsons Brus Slate Co

MUBERRID CO SPECIALTY TOOL MERS INC TRI-STATES BLDG MATERIALS CO INC

### CUTTERS, SIDING, ASPHALT

#### CUTTERS, TILE

Fletcher-Terry Co JMJ Products Co RED DEVIL TOOLS SELCK (WALTER E) & CO

#### DAMPERS FOR CEILING DIFFUSER

AIR CONTROL PRODUCTS INC

#### DAMPERS, FIREPLACE

Allen Steel Products
BENNETT-IRELAND CO
BOSTWICK STEEL LATH CO
Chattanooga Implement & Mfg Co COPCO STEEL & ENGINEERING CO Dunley Brothers Gabriel Steel Co Harris Inc Hart Products Inc H & R Mfg Co Industrial Iron Wo Industrial Iron Work KEWANEE MFG CO MAJESTIC CO ker Brothers rless Mfg Co Portland Stove Foundry Co Paice FirePlace HEAVER & TANK CORP SUPERIOR FIREPLACE CO Swett (A L) Iron Works Vestal Stove Co Building Specialties Div

#### **DAMPPROOFERS**

CALBAR PAINT & VARNISH CO

#### **DAMPPROOFING** COMPOUNDS

Adensite to
Anti-Hydro Waterproofing Co
BARRETT DIV ALLIED CHEMICAL & DVE CAREY (PHILIP) MFG CO Cemix Co Ceresit Waterproofing Corp COPAGE INC Donley Brothers FLINTHOTE CO Horn (A C) Co Inc JOHNS-MANVILLE CORP MIRACLE ADMESIVES CORP MORRE (GODDLOE E) CO Palto Products Inc PITTSBURGH PLATE GLASS CO PITTSBURGE FLATE BLAS Reardon Co Reilly Tar & Chemical Corp Rubber & Plastics Compoun Sonneborn (L) & Sons Inc nd Co Inc Suray-O-Rend Co Sullivan Co Truscon Laboratories Div Devoe & Raynolds Inc
U S Gypsum Co
Vita-Var Co
Wilbur & Williams

#### DASH, STUCCO

Calvin Tompkins Co Func-Dash Mfg Co Mission Lime Products Co Sullivan Co Tamms Industries Inc

DECKS, ROOF, METAL BERGER BYG CO DIV REPUBLIC SYEEL COOP CECO SYEEL PRODUCTS CO FENESTRA BUILDING PRODUCTS POLLAMBRE STEEL CORP Goldsmith Metal Lath Co INLAND STEEL PRODUCTS CO ST PAUL CORRUGATING CO Soule Steel Co
TENNESSEE COAL INDW & MAILBOAD CO
TRUSCON STEEL CO DIV REPUBLIC STEEL
EXP
U S Gypoum Co
United Nates Steel Co
Wheeling Corrupating Co

#### DECKS, ROOF, PRECAST, **GYPSUM SLAB**

CERTAIN-TEED PRODUCTS CORP

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### DEODORANTS, HOUSEHOLD

Clorox Chemical Co Holley Chemical Co Nu-Air Chemical Div Olympic Tool & Mfg Co

Puritan Sales Co
U S Sanitary Specialties Corn

#### DEODORANTS, PAINT

Air Correctives of Chicago Inc Breinig Brothers Central Paint & Varnish Works Consumers Glue Co Hardware Products Co Bulley Chemical Co

#### **DERRICKS**

American Hoist & Derrick Co Cipde Iron Works Inc Dobbie Foundry & Machine Co Downs Crane & Hoist Co Lane Mfg Co Sasgen Detrick Co

#### DESTROYERS, SOOT

Anthracite Boiler Compound C Boyer Chemical Laboratory Co Camp Chemical Co Coughlin (G N) Co Saginaw Salt Products Co So-Lo Works Inc Tamms Industries Inc Trion Inc Tanms Industries Inc Trion Inc Triple-X Chemical Laboratories Wall (P) Mfg Co Wayne Chemical Products Co Weather Seal Co

#### DEVICES, MARKING

Eliason Tool Co Heller (W C) & Co Ryerson (Joseph T) & Son STANLEY WORKS Fimely Products Co

#### DEVICES, TIMING

GENERAL ELECTRIC CO APPARATUS DEPT

#### DEVICES, WIRING

National Electric Products Co Porcelain Products Inc

#### DIFFUSERS, AIR

Air Control Products INC Air Devices, Inc Anemostal Corp of America Connor (W B) Engineering Corp Pyle-National Co Multi-Vant Div

#### DIGGERS, POST HOLE

American Fork & Hoe Co Ames Baldwin Wroming Co Dicke Toole Co DISSTON (HENRY) & SONS INC DISSION (HENNY) & T Franklin Equipment Co Fulton Tool Works Ine Hubbard & Co Iwan Brothers Ine Ka-Mo Tools Ine Lectonia Tool Co Star Bit & Tool Co Sterling Foundry True Temper Corp Warren Tool Corp Winpower Mfg Co Woodings-Verona

#### DISCS, ABRASIVE

Albertson & Co Inc AMERICAN FLOOR SURFACING WACHINE CO
Armour & Co Sandpaper Div
BEHR-MANNING CORP DIV NORTON CO
BLACK & DECKER MFG CO
BLACK & DECKER MFG CO
Clarke Sanding Machine Co Mid-West Abrasive Co PITTSBURGH PLATE GLASS CO BRUSH DIV Poly Products
Rhodes (James III) & Ca
Sandpaper Inc
Standard Bronse Ca

#### DISHWASHERS

AMERICAN RADIATOR & STANDARD SANI-Apex Rotarex Corp GENERAL ELECTRIC CO APPLIANCES & MERCHANDISE DEPT Hobart Mfg Co Jackson Dishwasher Co MULLINS MFG CORP WESTINGHOUSE ELECTRIC CORP APPLI-

#### DISHWASHERS, CLOTHES **WASHER & SINK** COMBINATION

#### DISINFECTANTS

Boyle-Midway Inc Carbolineum Wood Preserving Co Grannelli Chemical Dept DuPout (E I) De Gramelli Chemical Dept. I Nemours & Co. Hollingshead (R M) Corp. Koppers Co. Pennsylvania Salt Mfg Co. Puritan Sales Co. Sherwin-Williams Co. Socony-Vactum Oil Co.

#### Bennett Mfg Co **▶ DOCKBOARDS**

Elizabeth Iron Works Inc Magline Inc Magnesium Co of America Pallet Engineering Co

DISPENSERS, PAPER

#### **▶** DOLLIES

Eldon Mfg Co Electric Wheel Co Fairbanks Co
Faultless Caster Corp
Hamilton Caster & Mfg Co
Howe Scale Co
Johnson Industries Inc Johnson Industries Inc Lewis-Shepard Products Inc Nutting Truck & Caster Co Inc Saginaw Stamping & Tool Co Service Caster & Truck Corp West Bend Equipment Corp

### DOOR BOTTOMS, DRAFT

corite Inc conis (W J) & Co orbin Metal Strip Mfg Co ogd Mfg Co Light Mfg Co
MACKLANBURG-DUNCAN CO
MACKLANBURG-DUNCAN CO
MACKLANBURG-DUNCAN CO
MASTER METAL STRIP SERVICE CO
MONARCH Metal Weatherstrip Co
Notional Gound Products Inc
Sentry Stop A Draft Co
Synthys for AJ F Co
Thurmal Co

#### DOOR MATS, STEEL FLEXIBLE

Cyclone Fence Div American Steel & Wire Co Keystone Wire Matting Co LaPorte Mat & Mfg Co

#### DOOR OPERATORS Bonimer Spring Hinge Co Inc.

Chicago Spring Hinge Co CORRIN (P & F) DIV AMERICAN HARD-WARE CORP CROFT STEEL PRODUCTS INC Eagle Lock Co GETTY (N S) & CO INC Glynn-Johnson Corp Hardware Products Inc Harris Inc Harris Inc Harton Div Aveo Mfg Corp Ives (H B) Co Kaptur (Joseph J) Sales Co Kaptur (Joseph J) Sales Co Kathun (K) Corp LCN Closers Inc LOCKWOOD MAROWARE MFG CO Newell Mfg Co New England Mfg & Supply Corp Norton Door Closer Co Norwalk Lock Co Div Segal Lock & Hardware Co Parker (S) Hardware Mfg Co Reading Hardware Co RICHARDS-WILCOX MFG CO RUSSELL & ERWIN DIV AMERICAN HARD-WARE CORP

WARE CORP.
WARE CORP.
WARE CORP.
WARE CORP.
SARGENT 4 CO
SARGENT 4 CO
STORMER CO
STORMER CO
STORMER WORKS DOOR CONTROL DIV
STORMER WARE
WARE WORKS DOOR CONTROL DIV
ALE A TOWNE MAG CO

#### DOOR OPERATORS. AUTOMATIC

Autosonic Sales Div Vendo Co BARBER-COLMAN CO Calder Mig Co Cornell Rolling Door Works Garrett Mig Co General Door Mig Co GETTY (H S) & CO INC Kinnear Mig Co Market Door Co Quincy Mig Co RAYNER MIG CO

RICHARDS-WILCOX CO ROBOT APPLIANCES RUSSELL & ERWIN DIV AMERICAN HARD-WARE CORP ROWE MFG CO STANLEY WORKS Vendo Co WAGNER MFG CO Wilson (J.G.) Coro

DOOR OPERATORS,

GARAGE CAMPERO DOOR OF PRANTZ WEEK CONTROL OF CONTR Howell Co Kinnear Mfg Co MeKEE DOOR CO BICHARDS-WILCOX CO ROBOT APPLIANCES ING ROWE MFG CO Vendo Co WAGNER MFG CO

#### DOOR SADDLES

Decorite Inc Fobbins Mfg Co

#### DOOR SPRINGS

Accurate Suring Mfg Co AMERICAN STEEL & WIRE CO Chicago Spring Hinge Co CORBIN (P & F) DIV AMERICAN HBWE CORP
Fleads Equipment Mfg Co
Hotbard (M Di Spring Co
Milieaukee Sampling Co
Milieaukee Sampling Co
Sager Barrows Hock
Sager Barrows Hock
Stankley Works
STARLEY WORKS
TERMESSEE COAL HOD & RAILBOAD CO

DOORS, ACCESS

Artna Plywood & Venoer Co CARR ADAWS & COLLIER CO CARE ADAMS & COLLIER CO
Cole Mig Co
Columbia Metal Boz Co
Dalhistrum Metallic Hoor Co
Bullistrum Metallic Hoor Co
Bullistrum Metallic Hoor Co
Bullistrum Metallic Hoor Co
Bullistrum Metallic Hoor Co
House Bretherher Mig Co
Fries & Son Steel Construction & Engineering
Co
Hottle Mig Co
Hottle Mig Co Ideal Co Industrial Iron Works INLAND STEEL PRODUCTS CO MAJESTIC CO MINIMI CABINET DIV CAREY (PHILIP) MFE CO Morgan Co
Rock Island Millwork Co
SIMPSON LOGGING CO Standard Steel Cabinet Co STEELCRAFT WEG CO UNITED STEEL FABRICATORS INC Vestal Store Co Building Specialties Dir Western Foundry Co Wheeler Osgood Co

#### DOORS, ASH PIT

Adams Co BENNETT-IRELAND CO BOSTWICK SYEEL LATH CO COPCE TEEL 4 ENGINEERING CO COPET (FI W) CO Douley Brothers Harris Inc MEATILATOR CO Industrial Iron Works INLAND STEEL PRODUCTS CO INCOME DIESE PRODUCTS CO Injustrational Steel Co KEWARKE MFG CO MALESTIC CO Perflea Mfg Co Seelt (A W. Joon Works TRUSCON STEEL CO DIV REPUBLIC STEEL CORP. Vestal Stove Co Building Specialties Div Wheeling Corrugating Co Wilmington Casting Co

#### DOORS, CABINET & CUPBOARD, WOOD

Actina Plywood & Veneer Co American Plywood Corp AMBEL MOVELTY CO ATLAS PLYWOOD CORP Buffelen Lumber & Mig Co Burke Millwork Co CARR ADAMS & COLLIER CO Cole Mfg Co CURTIS COMPANIES INC Ess-Wood Corp Farley & Loctacher Mfg Co

CRECC & SON
Huttig Mfg Co
Ideal Co
Ideal Co
Ight Plywood Corp
IXL Furniture Co
Kinzua Pioe Mills Co
Mirquart Millwork Co
MERGEL CS
M & M Woodworking C odworking Co M & M Woodworking Co Morgan Co Northwest Door Co Pacific Mutual Door Co Palme Lumber CO Phens: Mfg Co Rock Island Millwork Co Roobs Pt. Vwood Corp North Comments of Millwork Co Senera Lumber & Millwork ( Silbernagel (George J) & Sons SIMPLAN LECGING CO

#### DOORS, CELLAR, BULKHEAD (METAL) BILCO CO

DOORS, CLEANOUT

Adams Co BENNETT-IRELAND CO BOSTWICK STEEL LATH CO CECO STEEL PRODUCTS CO Colonial Fireplace Co Harris Inc HEATILATOR CO INLAND STEEL PRODUCTS CO

International Steel C KEWANEE MFG CO MAJESTIC CO Mester Brothers METAL CRAFTERS . PRICE FIREPLACE MEATER & TANK CORP Sterling Foundry Co. SUPERIOR FIREPLACE CO. S Hardware & Mfg Co lestal Store Co Building Specialties Die Vestern Foundry Co Theeling Corrugating Co

#### DOORS, COAL CHUTE

Adams Co Allen Steel Products MOSTWICK STEEL LATH CO CECO STEEL PRODUCTS CO COPCO STEEL & ENGINEERING CO Gabriel Steel Co Industrial Iron Work KEWANEE MFG CO MAIFSTIC CO Mesker Brothers NATIONAL GYPSUM CO Peerless Mfg Co Swett (A L) Iron Works I' S Gypsum Co Wheeling Corngating Co

### DOORS, COLD STORAGE

#### DOORS, COMBINATION, ALUMINUM

Aluminum Building Products CECO STEEL PRODUCTS CO Compos-Mitaele Products Co McKinley (Orman O) Co REYNOLDS METALS CO BUILDING PRES-UCTS DIV RUSSELL (F C) CO Storm Windows of Aluminum Inc Weather-Proof Co

#### DOORS, COMBINATION, STEEL

McKinley (Orman 0) Co RUSSELL (F C) CO Weather-Seal Inc

#### DOORS, COMBINATION, WOOD

ANGEL NOVELTY CO Buffelen Lumber & MTg Co Burke Millmork Co CARR ADAMS & COLLIER CO Mfg Co Mination Door Co Combination Door Co. Continental Screen Co. CURTIS COMPANIES INC Farley & Loctscher Mfg Co. GATE CITY SASH & DOOR CO. GREGG & SON

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Rempbill (A D) Co
Blues (Edward) Lamber Co
Hottig Mfg Co
Hottig Mfg Co
Mathin Mfg Co
Mathin Mfg Co
Mathin Mfg Co
Mathin Mfg Co
National Revenue Co
National Revenue Co
Northern West
Northern Sand & Boor Co
Northern Wood Products Co
Nillernage (George) & Sons Co
Nillernage (Geo

#### DOORS, ELEVATOR & DUMBWAITER

St Louis Fire Door Co DOORS, FIR

Armine Playmond & Vencer Co Artine Plymond & Vencer Co ANGEL NOVELTY CO ATLAS "LYWOOD CORP Buffelen Lamber & Mfg Co Burke Millwork Co Borke Millwork Co.
Cruver-Langlardt Door Co.
Farley & Loetcher Mfg Co.
Georgia-Faeiffe Plywood & Lumber Co.
GREGG & SON.
WARBOR PLYWOOD CORP. Inden Mfg Co Mileauker Plymood Co M & M Woodworking Co Monarch Boar & Mig Co Northwest Boar Co Robinson Mig Co Rock Island Sasts & Door Co Silberingol (George) & Sons Co Silberingol (George) & Sons Co Spokane Sash & Door U S PLYWOOD CORP Washington Door Co Western Door & Plywood Corp Woodward Lumber Co

DOORS, FIRE

AMERICAN WELDING & MFG CO Cornell Relling Door Works Dahlstrom Metallic Door Co EMESTRA BUILDING PRODUCTS FERENCE MEC Co Harris Preble Fire Boors Inc International Firepress Boor Co International Steel Co Kinnest Mig Co desket Rras mens-Illinois Glass Co Kaylo Div Protexol Corp.
RICHARDS. WILCOX CO.
RICHARDS. WILCOX CO.
RODOIS PLYCOX CORP.
NI Louis Fire Dear Co.
Soule Meel Co. Syracuse Fire Door Corp.
UNITED STEEL FABRICATORS INC.
U.S. PLYWOOD CORP.
VIRGINIA METAL PRODUCTS CO.

#### DOORS, FLEXIBLE & FOLDING

Cutition Co.

MOLCOME A MOKE MFG CO INC.

MOLCOME A MOKE CORP.

MICH CASTLE PRODUCTS CO.

MICH CASTLE PRODUCTS CO.

MICHARDS WITH CO.

MOLCOME CO.

#### DOORS, FLUSH, WOOD

CARR-ADAMS & COLLIER CO Editor nog Mill Co Ess Wood Corp Farley & Leetscher Mfg Co Flush boor Dir Culler Furnitism Co General Plywood Corp General Plywood Corp General Plywood & Lumber Co GREGG & 500 unties & 50M Hardwood Products Co HASKELITE MFG CORP NiGGIMS INC Huttin Mfg Co Hydr Murphy Co Ipik Plywood Corp

Kennebec Inc Kennedy (J G) Limber Ce Rachton Plywood & Veneer Co Letrace Building Products LONG-SELL LUNSER TO LUIZE (WM B) Co WENGEL CO MINGEL CO WENGEL OF
Michigan Door Co
Michigan Door Co
Midwest Plywood Co
Mit Milwauker Plywood Co
M & M Woodworking Co Bemprest Dir
Morgan Co
Musman & Shafer Inc
Northern Sash & Door Co Northwest Door Co PAINE LUMBER CB Petternon (J C) Co Plywood & Door Sales Corp Plywoods Plasties Corp Back Island Millwork Co 800DIS PLYWOOD CORP SIMPSON LOGGING CO THOMASON PLYWOOD CORP US PLYWOOD CORP Walled Lake Door Co

DOORS, GARAGE, METAL

Blaw Knox Div Blaw-Knox Co Calder Mfg Co Compo-Miracle Products Co Compo Miracia Products Co
FRANTZ MFG CO
Holister Coil Spring Mfg Co
International Sixel Co
International Mfg Co
International Mfg Co
MORRISON STEEL PRODUCTS INC Proper Co REYNOLDS METALS CO BUILDING PROD-UCTS DIV Silbernagel (George) & Sons Co STAMPING PRODS & MFG CO STEEL DOOR

BIV
Steel Door Corp
STRAND GARAGE DOOR DIV DETROIT
STEEL PRODUCTS
Talylor (L 8) Mfg Co
Taylor (R L) Inc Wilson Foundry & Machine Co.

#### DOORS, GARAGE, WOOD HARBER COLWAN CO

Buffelen Lumber & Mig Co Buffelen Lumber & Mig Co Burke Millwork Co Calder Mig Co CAPITOL PRODUCTS CO CARR ADAMS & COLLIER CO CRAWFORD DOOR CO CURTIS COMPANIES INC. FRANTZ MFG CO neral Door Mfg Co orgin Pacific Plywood & Lumber Co Hall Enterprises HARBOR PLYWOOD CORP Northwest Door Co OVERNEAD DOOR CORP RAYNOR MFG CO RICHARDS-WILCOX CO BOACH & Musser Mfg Co Book Island Millwork Co RODDIS PLYWOOD CORP SIMPSON LOGGING CO STANLEY WORKS GARAGE HANDWARE DEFT Starline Inc

#### DOORS, GARAGE, OVER-HEAD TYPE, METAL

Aluminum Products Curp. Calder Mfg Co HANTE MFO CO MORRISON STEEL PRODUCTS CO. Pioneer Co STAMPING PRODUCTS & MFG CO STEEL DOOR DIV STRAND GARAGE DOOR DIV DETROIT STEEL PRODUCTS CO Taylor (L. N) Mfg Co Wilson (J G) Corp

#### DOORS, GARAGE, OVER-HEAD TYPE, WOOD

Acme Door Co Better-Bilt Door Co Ruffelen Lumber & Mfg Co Burke Millwork Co CAPITOL PRODUCTS CO CARR ADAMS & COLLIER CO CRAWFORD DOOR CO CURTIS COMPANIES INC Daris Plywood Curp
Essential Products Carp
Farley & Lortscher Mfg Co
Georgia-Pacific Plywood & Lumber Co Hall Enterprises Marris Inc M & M Woodworking Co Marquart Millwork Co MATIONAL MFC CO Northwest Door Co OVERHEAD DOOR CORP Overhead Door Div United Products Co-Pacific Mutual Door Co-Pecile Co Ince Phenis Mis Co Phenix Mfg Co
RAYNOR Mfg CO
RAYNOR Mfg CO
RICHAROS. WILLOX CO
Roach & Musser Mfg Co
Roach Mfg Co
Rowe Mfg Co
Rowe Mfg Co
SIMPSON LOGGING CO Starline Inc WAGNER MFG CO Washington Door Co Washington Door Co Western Boor & Plywood Corp

#### DOORS, GLASS

ANGEL NOVELTY CO Areadia Metal Products Inc Bache (Semon) & Co Hagemiann Cos Inc Huttis Nash & Door Co KAWMEER CO LUBRIY-OWERS-FORD GLASS CO LUBRING CORP Works March & Cos Inc Cos Inc. Cos Inc. Northwest Door Co PITTSBURGH PLATE GLASS CO

#### DOORS, HARDWOOD

ietna Plywood & Veneer Co imerican Plywood Corp imerican Sash & Door Co Braund-Harmon Co Braund (W R) Co Buffelen Lumber & Mfg Co Buffelen Lamber & MIG Co Carnahan Mfg Co CARR ADAMS & COLLIER CO CURTIS COMPANIES ING Ess-Wood Corp Farley & Loetscher Mfg Co Georgia Pacific Plywood & Lumber Co MASKELITE NFG COMP Huttig Mig Co Hyde-Murphy Co Ideal Co Ipik Plywood Corp Kennebec Inc Letrace Building Products Marquart Millwork Co MENGEL Of Michigan Door Co, Michigan Door Co.

Michigan Co
Museman & Shafer Inc
Northern Sash & Door Co
PAINE LUMBER CO PAINE LUMBER C9
Phillips-Rhyne Lumber Co
Rock Island Millwork Co
RODDIS PLYWOOD COP
THOMASON PLYWOOD CORP
US PLYWOOD CORP
Walled Lake Door Co
Wisconsin Door Co

#### DOORS, LAUNDRY CHUTE

AIR CONTROL PRODUCTS INC COPCO STEEL & ENGINEERING CO IDEAL CABINET CORP DIV OF DES LAURIERS COLUMN MOULD CO INC Kluegel (Ernest) & Co MIAMI CABINET DIV CAREY (PHILIP) CO

#### DOORS, LOUVRE, WOOD

CARR ADAMS & COLLIER CO CURTIS COMPANIES INC Farley & Luctscher Mfg Co Morgan Co Pro-Tect-U Jalousie Corp

#### DOORS, METAL

Actna Steel Products Corp American Sheet Metal Works AMERICAN WELDING & NFG CO AMENICAN MELONG & MPC CO BALCO CO BALCO CO BALCO CO BALCO CO CECO STEEL PRODUCTS CO CECO STEEL PRODUCTS CO CINCINNATI IRON FENCE CO INC COTTELL BOILING DOOR WORKS Crittall Inc CROFT STEEL PRODUCTS INC Dahlstrom Metallic Door Co Decatur Iron & Steel Co Demsey & Associates FEMESTRA BUILDING PRODUCTS
FLYNN (MICHAEL) WFG CO

Harris Proble Fire Boors Inc HOPE'S WINDOWS INC International Firegraph Co International Steel On KAWNEER CO Kinnear Mfg Co Mahon (B C) Co Mesker Bros METAL CRAFTERS Milwanker Feelie Co Inc RICHARDS-WILCOX CO Richmond Fireproof Door Co RICHARDS-WILCON CO Richmond Fireproof Door Co RUSSELL (F C) CO Smith (F P) Wire & Iron Works Inc Soule Steel Co STEELCRAFT MFG CD Stewart Iron Works Inc Thorn (J S) Co Truline Development Truscon Steel Co DIV Republic Steel CORP UNITED STEEL FARRICATORS VIRGINIA METAL PRODUCTS CO

Weather-Proof Co WEATMER-VAME CORP Williamsburg Steel Prod Wilson (J G) Corp Products Co

#### DOORS, PLYWOOD

etna Plywood & Veneer Co Actia Flywood Corp American Plywood Corp AMERICAN WELDING & MFG CO ANGEL NOVELTY CO ATLAS PLYWOOD CORP Braund (W.B.) Co Buffelon Lumber & Mfg Co Internation of Corp.
LONG-BELL LUMBER CO.
Mank Seattle Lumber Co. Mauk Seattle Eumner Co MENGEL CO Pacific Mutual Door Co Plywoods-Plastics Corp SIMPSON LOGGING CO Weisberg-Baer Co U S PLYWOOD CORP

#### DOORS, PONDEROSA PINE

CARR ADAMS & COLLIER CO Cole Mfg Co CURTIS COMPANIES INC Farley & Loetscher Mfg Co CHRIS Loctscher Mfg Co GREGG & SON Hines (Edward) Limber Cu Huttig Mfg Co LONG-BELL LUMBER CO Morgan Co Mussman & Shafer Inc Mussman & Shafer Inc Northern Sash & Boor Co Rock Island Millwork Co Silbernagel (George) & Sons Co Spokane Sash & Door Co

#### DOORS, PREFIT

Buffelen Lumber & Mfg Co Burke Millwork Co Crurer-Langhardt Door Co Farley & Loctacher Mfg Co Inik Plywood Corp LONG-BELL LUMBER CO

#### DOORS, REVOLVING

General Bronze Corp International Steel Co Michaels Art Bronze Co REVOLVEDOR CORP

### DOORS, SCREEN, WOOD

Alumatic Corp of American Sash & Door ANGEL NOVELTY CO Barnhart (A W) Co Rurke Muller (B) Barnbart (A W) Co Burke Millwork Co CARR ADAMS & COLLIER CO Chamberlin Co of America COFFMAN (R E) CO INC CROSSETT LUMBER CO CHOSSETT LUMBER CB COVER Shade & Sercen Co CHETIS COS NWG Dennia (W. 1) & Co Faring & Loctscher Mfg Co Fordyer-Crossett Lumber Co General Woodwaft Co Hemphill (A. D) Co Hollster Coil Spring Mfg Co Huttig Mig Co Huttig Sash & Door Co Ideal Co KEYSTONE WIRE CLOTH CO Kinzua Pine Mills Co LONG-BELL LUMBER CO

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Marquart Millwork Co Marquart Millwork Co Morgan Bash & Door Co National Screen Co Inc National Screen Door Co NEW YORK WIRE CLOTH CO NEW YORK WIRE CLOTH Northern San & Door Co Northwest Door Co Northwest Door Co Orange Screen Co Pacific Mutual Door Co Prentie (F W) & Co Robach & Musser Co Robbinson Mg Co Rock Island Millwork Co Rock Island Millwork Co RUSSELI (F C) Co Schumacher (F E) Co Seweca Lumber & Millwork Seneca Lumber & Millwork Co Spokane Sash & Door Co Universal Fabricators Weather-Proof Co

#### DOORS, SHOWER

American Extruded Products Binswanger & Co California Shower Door Co FIAT METAL MFG CO Glass Shower Door Co Glass Shower Door Co KAWMEER CO Lehman Sprayshield Co Milwaukee Stamping Co National Metal-Art Mfg Co National Mirror Works PITTSBURGH PLATE GLASS CO Safetee Glass Co Shower Door Co of America Southern Shower Door & Cabinet Co Windsor Shower Door Co

#### DOORS, SIDEWALK

Adams Co
Bilco Co
Cincinnati IRON FENCE CO
Edwards Mfg Co
Fries & Son Steel Construction & Engineering
Co Logan Co.

#### DOORS, SLIDING. RESIDENTIAL

Accurate Metal Weatherstrip Co Actna Steel Products Corp American Steel Door Co AMERICAN WELDING & MFS CO Arcadia Metal Products Co Bayley (William) Co Better-Bilt Door Co Buffelen Lumber & Mfg Co Cole Mfg Co CURTIS COMPANIES INC BORFLO MFG CO ESS-Wood Corp. Ess-Wood Corp Farley & Loetscher Mfg Co Ideal Co IDER PHYWOOD CO KNAPE & Vogt Mfg Co LONG-BELL LUMBER CO METAL PRODUCTS CORP M & M Woodworking Co Orchard Mfg Co
Rock Island Millwork Co
STEELCRAFT MFG CO
TRUSCON STEEL CO
U S SLIDING DOOR CORP
US PLYWOOD CORP
UNITED STEEL FABRICATORS INC
VIRGINIA METAL PRODUCTS CO
WOODALL INDUSTRIES

#### DOORS, SOFTWOOD

Actua Plywood & Vencer Co American Sash & Door Co ANGEL NOVELTY CO ATLAS PLYWOOD COMP CARR ADAMS & COLLIER CO Farley & Loctscher Mfg Co Buttig Sash & Door Co LONG-BELL LUMBER CO Marquart Millwork Co Mauk Seattle Lumber Co MERGEL CONTROL OF THE STREET O Simpson Industries Inc

#### DOORS, ROLLING, STEEL

formell Rolling Door Kinnear Mfg Co Lawrence Steel Co Mahon (R C) Co

#### DOORS, ROLLING, WOOD Cornell Rolling Door Works Kinnear Mfg Co

DOORS, STORM, WOOD & METAL

Alseo Inc Anderson (V E) Mfg Co ANGEL NOVELTY CO Ruffelen Lumber & Mfg Co CURTIS COMPANIES INC Eagle Picher Co Farler & Loetscher Mfg Co GREGG & SON Hemphill (A D) Co Hines (Edward) Lumber Co Holister Coil Spring Mfg Co Co tscher Mfg Co Huttig Mfg Co LONG-BELL LUMBER CO Marquart Millwork Co illwork Distributors M & M Woodworking Co.
Morgan Co.
Morgan Co.
Narthwest Boot Co.
Pribenti Mig Co.
& Co.
Robbins Mig Co.
& Russell (Fc) Co.
& Silhernagel (George J. & Sons Co.
& Silhernagel (George J. & Sons Co.
& Weather-Froof Co.
& Wea

#### DOORS, TIN CLAD

Edwards Mfg Co

#### DOWELS, WOOD

BENDIX MFG CO BRADLEY LUMBER CO OF ARK BRADLEY LUMBER OF Burks Millsork Co-Chicage Wood & Plastic Producta Cooke (B F) Mfg Co Cummings (C B) & Sons Co CURTIS COS INC Despres Dowel Mfg Co Ellingers Engleweod Dowel Co Fordyce-Crossett Lumber Co Grand Rapids Dowel Works Mats Hendwood Co. Holl Hardwood Co. LONG-EEL LUMBER CO. Maine Industries Co. Mitchell Bros. Co. Mitchell Bros. Co. Mitchell Bros. Co. Morgan Lumber Co. Nasbotals Moulding & Mfg. Co. Rosee (Henry) Mfg. Co. Rostie Henriture Co. Inc. Saunders Co. Saunders Co. South Beard Dewel & Mfg. Co. South Beard Dewel & Mfg. Co. South Beard Dewel & Mfg. Co. Rustic Furniture Co Inc Saunders Co George J) & Sons Co Silbernagel (George J) & Sons Co South Bend Dowel & Mfg Co Sparta Spoke Factory Stiles (H A) Co Stowell-McGregor Co Strowel-McGregor Co Strowel - McGregor Co EYERHAEUSER SALES CO

#### **DRAINBOARDS**

Enamel Products Co Tregeser (John) Steam Copper Works Whitehead Metal Products Co Inc

#### DRAINS, FLOOR

Allen Steel Products Covert (H W) Co bonley Brouse Industrial Iron Works KEWANEE MFG CO Louden Machinery Co MALESTIC CO MALESTIC CO Robinson Clay Product Co Syracuse Alloy Metals Corp Vestal Store Co Zurn (J A) Mfg Co

DRAINS, ROOF
BARRETT DIV ALLIED CHEMICAL & BYE ndustrial Iron Works tobinson Clay Product Co turn (J A) Mfg Co

#### DRAWERS, STORAGE, STEEL

on Metal Produ Precision Equipment Co Red Tiger Products Inc

### DRESSERS, GRINDING

Atkins (E C) Co BEHR-MANNING CORP DIV NORTON CO Calder Mfg Co Ideal Industries Inc

#### DRILL PRESSES

Champion Blower & Forge Co BOCKWELL MFG CO DELTA POWER TOOL DIV WALKER-TURNER CO DIV KEARNEY & TRECKER CORP

### DRILLS, BRICK, CONCRETE,

Ackerman-Johnson Co.
Arro Kapansion Bolt Co.
BLACK & BECKER WFG CB.
Bucabel Tool Mfg Co.
Carboloy Inc.
Chicago Expansion Bolt Co.
Chicago Expansion Bolt Co.
Chicago Presumatic Tool Co.
Damascus Steel Products Corp.
Gardner-Deuver Co.
Holiab Industries Inc.
Kennametal Inc. Kennametal Inc Kraeuter & Co Inc MALL TOOL CO Inc Millers Falls Co
MILWAUKEE ELECTRIC TOBL CORP
New England Carbide Tool Co
Proto Tool Co Proto two
Rainey-Tools
Rawlplug Co Inc Industrial Div
RED DEVIL TOOLS
STANLEY TOOLS DIV STANLEY WORKS Star Expansion Products Im Super Tool Co SYNTRON OF CO Tilden Tool Mfg Co Vaughan & Bunnell Mfg Co Vulcan Tool Mfg Co Warwood Tool Co Wodack Electric Tool Corp

#### DRILLS, ELECTRIC, PORTABLE

Albertson & Co Inc BLACK & DECKER MFG CO BRADFORD MACHINE TOOL CO Chicago Pneumatic Tool Co Cincinnati Electrical Tool Div Le Blond (R K) Machine Tool Co (H K) Machine Tool Co Clarke Sanding Machine Co Clumming FORTABLE TOOLS DIV CUM-MINS-CHICAGO CORP Denver Floor & Bafely Supply Co DERMEL MFG CES INC. TROPPENDENT FATEUMATIC TOOL CO Kest Tool Co Controlled Thereto. Mr. Co. MALL TOOL CO Mfg Co Millers Falls Co MILWAUKEE ELECTRIC TESL CORP Misener Mfg Co Inc R C S TOOL SALES CORP ROCKWELL MFG CO DELTA POWER TOOL SKILSAW INC SALLAW INC.
STANLEY ELECTRIC TODIS DIV STANLEY
WORKS.
SYNTRON CO
WALLACE (J B) 4 CO
WALLACE (J D) 5 CO

#### DRILLS, GLASS

Barrett (William L)
RED DEVIL TOOLS

#### DRILLS, PUSH

Brush Nail Expansion Bolt Co Greeniee Tool Co Millers Falls Co

### DRILLS, RIGHT ANGLE,

ELECTRIC MILWAUKEE ELECTRIC TOOL CORP

#### DRILLS, WELL BUCYRUS-ERIE CO Consolidated Industries Ka-Mo Tools Inc

DRILLS, WOOD

Cleveland Twist Drill Co Deuse (E W) Co Forest City Bit & Tool Co Garner (R D) Co Ine Graham (John H) & Co Ine Greenfield Tap & Die Corp Greenfield Tap & Die Corp Greenfiel Teel Co

## INDEPENDENT PREUMATIC TOOL CO MALL TOOL CO MILWAUKEE ELECTRIC TOOL CORP STANLEY TOOLS OIV THE STANLEY

WORKS Star Bit & Tool Co Syracuse Twist Brill Co Union Twist Brill Co

#### DRIVERS, & FASTENERS, **CARTRIDGE ACTUATED TYPE**

Powder Power Tool Co RAMSET FASTENERS INC REMINGTON ARMS CO INC STEMES CORP

#### DRIVERS, CORRUGATED FASTENER

#### DRIVERS, GLAZIER'S POINT

RED BEVIL TOOLS Sommer & Maca Glass Machinery Co

#### DRIVERS, STEEL POST

AMERICAN STEEL & WIRE CO Bethlehem Steel Co CECO STEEL PRODUCTS CO KEYSTONE STEEL & WINE CO Mid-States Steel & Wire Co Northwestern Steel & Wire Co Sweet's Steel Co

#### DRIVES, BELT V

ALLIS-CHALMERS MFG CO Broadway Bubber Mfg Co Dick (B & J) Co Inc Fairbanka Merse & Co Fairhanks Morse & Co Gates Rinber Co Houston Blow Pipe & Sheet Metal Works Industrial Iron Works Link-Belt Co Webb Belting & Supuly Co Western Foundry Co

#### DRIVES, CHAIN

Chain Belt Co Diamond Chain Co Inc Howell (R R) Co Industrial Iron Works leffrey Mfg Co Link-Belt Co Morse Chain Co Ramsey Chain Co Ramsey Chain Co Webb Belting & Supply Co Western Foundry Co Wheland Co

#### DROP CLOTHS

American Ladder Co
American Tent & Awning Co
Bernia Brothers Bag Co
Clifton Mfg Co
OANIELS (G R) INC
Futton Bag & Cotton Mills
May (D C) Co
New York Drop Cloth Mfg Co Inc
Standard Awning Co
Textile Industries Inc
Werner Cannas Froducts Co

#### DRYERS, AIR

Attapulgus Clay Co Bailey Lumber Co Dow Chemical Co Frigidalro Division General Mators Corp GERERAL AIR CONDITIONING CORP KELVINATOR DIV MASH-KELVINATOR CO Landowne & Moody Stewart-Warner Corp SOLVAY SALES DIV ALLIED CHEMICAL & DYE CORP

#### Tamms Industries Inc Union Mfg & Gauge Co DRYERS, CALCIUM

CHLORIDE Columbia Chemical Div Pittsburgh Plate Glass Co GIASH CO
DOW CHEMICAL CO
SOLVAY SALES DIV ALLIED CHEMICAL &
DVE CAPP
Tamins Industries Inc

### DUCTS, ALUMINUM KAISER ALUMINUM & CHEMICAL SALES

#### DUCTS, HEATING NON-METALLIC

Airtemp Div Chrysler Corp CAREY (PHILIP) MFG CO

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JOHNS-MANVILLE CORP

#### DUCTS, SHEET METAL

INLAND STEEL PRODUCTS CO MAJESTIC CO REYNOLDS METALS CO BUILDING PRODS

#### DUMPS, ASH, FIREPLACE

BENNETT-IRELAND CO BOSTWICK STEEL LATH CO COPCO STEEL & ENGINEERING CO COPCO (H W) Co Brothers Storl Co HATTIS INC. KEWANEE MFG CO MAJESTIC CO Price-Evans Foundry Corp SUPERIOR FIREPLACE CO

#### DUST COLLECTION SYSTEMS

#### DYES, CEMENT

Fierrock Co Horn (A C) Co Tambus Industries Inc Truscon Laboratories Div Devne & Raynolds Co

#### EDGES, METAL ROOF

Allen Steel Products
AMERICAN STEEL & WIRE CO Berger Mfg Div Republic Stre CEGO STEEL PRODUCTS CO Illinois Zine Co
NLAND STEEL PRODUCTS ES
Clauer Mfg Co
New Holland Metals Co
Rette Forence ST PAUL CORRUGATING CO TENNESSEE COAL INON & MAILROAD CO United States Steel Co Wheeling Corrugating Co

#### EDGERS, FLOOR, SANDING

AMERICAN FLOOR SURFACING MACHINE CO Clarke (Alex A) Mfg Co Clarke Sanding Machine Co Detroit Surfacing Machine Co Fiorboss-Habit Co GOLDBLATT TOOL CO ilger Co olt Mfg Co Lincoln-Schluster Floor Machine ( PITTSBURGH PLATE GLASS CO PORTER CABLE MACHINE CO RED DEVIL TOOLS SKILSAW INC

#### **ELECTRIC PUSH BUTTONS**

CORRIN (P 4 F) DIV AMERICAN NARD-WARE CORP NAGER (C) 4 SON MINGE CO LOCKWOOD NARDWARE MFG CO NUTOME INC. Skilman Hardware Co STANLEY WORKS

#### **ELEVATORS, BATCH BIN**

Raughman Mfg Co Inc BESSER MFG CO Blaw-Knox Div Blaw-Knox Co Concrete Transport Miser Co CONSTRUCTION MACHINERY SALES CO Eric Ricel Const. Co Fleming Mfg Co Fleming General Conveya-Gifford-Wood Co Jeffrey Mfg Co Jeffrey Mfg Co Jeffrey Mfg Co Conveyor & Mfg Co Johnson (C S) Co Link-Beit Co Universal Engineering Corp Universal Mfg Corp

#### **ELEVATORS, GRAIN** PORTABLE

Decre & Company General Implement Corp Kewance Machinery & Conveyor Co Link Mfg Co

#### ▶ ELEVATORS, HAND POWER ▶ ENTRANCES, DOOR

Barrett Cravens Co Energy Elevator Co Market Forge Co Sidney Elevator Mfg Co

#### ELEVATORS, RESIDENCE

Cheisea Elevator Co Inclinator Co of America Kimball Brothers Co Sedgewick Machine Works Shepard Elevator Co Shepard Elevator Otis Elevator Co

#### ELIMINATOR, CONDENSA-TION, TOILET TANK

Dudgeon

**ENAMEL** 

PENAMEL

Acme White Lead & Color Works
Alabastine Paint Products Div Chicago

Home & Color Works

Armican Marietta Co
Berry Brothers Joe
Berry Brothers Joe
Berry Brothers Joe
Central Paint & Varnish Works
Chicago Bronce & Color Works
Chicago Harman Cop
Enamel Products Co
Enamel Reside Corp
Lawrence (W W) & Co
Lawrence (W W) & Co
Lawrence (W W) & Co
Lawrence (Benjamin & Co
Moore (Be

#### ENAMEL, FLOOR

Boston Varuish Co Bevoe & Raynolds Inc DuPont (E. 1) de Nemours & Co Elliott Paint & Varuish Co Glidden Co Hobeken White Lead & Color Works Inc Neystone Varuish Co Lithogen Corp. Lithogen Corp. Losse Brothers MOORE (GOODLOE E) CO Brien Corp Patterson-Sargent Co PITTSBURGH PLATE GLASS CO PITISAURGH PLATE GLASS CO
PRATA & Lambert line
Sargent Gerke Co
Standard Varnish Works
Stelvette Mig Co
Trisson Latoratories Div Devoe & Raymolds
Line
Line
Line
ALLIS-GHALWERS MFG CO
Allistochalwers MFG CO
Allistochalwers MFG CO
Allistochalwers MFG CO Verlac Co Wilbur & Williams

#### ENCLOSURES, UNIT KITCHEN, METAL, FOLDING BRCHARD BROTHERS INC

#### ENGINES, DIESEL ALLIS-CHALMERS MFG CO

Buda Co Caterpillar Tractor Co Cleveland Diesel Engine Div General Motors Corp.
Comminst Engine Co.
Fairbanks Morre & Co.
Fairbanks Morre & Co.
Gold. Truck & Coach. Div. General Motors
Hill Diesel Engine Co.
International Marwester Co.
Nordberg Mfg Co.
Waskersha Motor Co.
Witte Engine Works Div. 011 Well Supply Co.
Witte Engine Works Div. 011 Well Supply Co.
WOITWINGTORS PUBP & MACHINERY CORP.

#### **ENGINES, GASOLINE**

ALLIS-CHALMERS MFG CO Briggs & Stratton Corp Buda Co COMSTRUCTION MACHINERY SALES CO Fairbanks Morse & Co Fuller & Johnson Mfg Co HOMELITE CORP Harvester Co International KONLER CO Noro Engine Co Beady-Power Co Salisbury Motors Div Wayne Mfg Co Universal Motor Co Wankesha Motor Co WESTINGHOUSE ELECTRIC CORP Wills Engine Works Dir Oil-Well Supply Co

CAMBETON (Wm) & Co Inc CARR ADAMS & COLLIER CO CURTIS COS INC Farley & Loctacher Mfg Co CREGG & SON Huttig Mfg Co KAWNEER CO LONG-BELL LBR CO M & M Mrg Co Morgan Co Roach & Musser Mfg Co Rock Island Millwork Co Silbernagel (George) & Sons Co SIMPSON LOGGING CO Spokane Sash & Door Co

#### ENTRANCES, STONE, PACKAGED

Building Products Inc.

#### FINTRANCES, STORE, METAL

Apex Brass & Bronze Works Badger Wire & Iron Works Inc Dahlstrom Metallic Boor Co International Steel Co

#### **EQUIPMENT, BARBEQUE**

Adelphian Mill BENNETT-IRELAND CO Bros ial Iron Works MAJESTIC CO Master Metal P e Co Barbeque Grill Co (Ernest) Iron Works

#### EQUIPMENT, BARN

BENNETT-INELAND CO. Berg Eqpt Corp Butler Mfg Co Clay Equipment Colurn Mfg Co Franklin Equipt nt Corn Locarin Mig. Co.
Locari pment Co

**EQUIPMENT, FARM** American Blower Co American-Larson Ventilating Co Appleton Mfg Co Arex Co Arex Co
Badger Corrugating Co
Bastian-Blessing Co
Beatrice Steel Tank Mfg Co
Bell (C 8) Co
BENNETT-IRELAND INC BERNETT-HELAND INC Brower Whiting & Co Brower Mfg Co Butler Mfg Co Butler Mfg Co Case (J I) Co Cellus Mfg Co Century Electric Co Clay Equipment Co Colum Mfg Co Colum (E) & Sons Columbian Steel Tank Co Continental Steel Corp Decre & Co Continental Steel Corp
Beere & Co
Dempster Mill Mfg Co
Des Moines Steel Tank Co
Diehl Mfg Co Electrical Div Singer Mfg Co
Edwards Mfg Co MERSON ELECTRIC MFG CO EMERSON EXECUTED MYS CO Fairbanks Morse & Co Fairbank Morse & Co Fairbank College (Co Geb) Rices Mig Co Geb) Rices Mig Co Geber All Longement Corp Gonber Mig Co Guard-11 Mig Co Hargerous Co

Hargrove Co Harvey Mfg Co

Hastings Equity Grain Bin Mfg Co Hemphill (A D) Co

#### **EQUIPMENT, POULTRY**

Adams-Thuma Co Aeroll Products Co, Inc Advance Manufacturing American Incubators In American Line Anderson Box Co Anderson Box Co
Raitimore Paper Box Co
Beatrice Steel Tank Manufacturing Co
Bromwell Wire Goods Co
Brower Manufacturing Co
Buckeye Incubator Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Rudson (H D) Mfg Co. Ilg Electric Ventilating Co INLAND STEEL PRODUCTS CO James Mrg Co Kalamazoo Tank & Silo Co Kalamason Tank & Sila Co
King Company
Kiner Mig Co
Kiner Mig Co
Louden Med Co
Louden Machinery Co
Louden Machinery Co
Louden Machinery Co
Louden Machinery Co
Massage Barris Co Inc
Massage Barris Co Inc
Massage Mario Co
Modine Irun Work
Modine Irun Work
Modine Irun Work
Modine Irun Work
Modine Mig Co
Ney Mig Co
Louden Mig C Olson Mfg Co Papec Machine Co Patch (A H) Inc Perfess Electric Co PITTSBUNGA PLATE GLASS CO QUEEN STOVE WORKS Rapids Machinery Co RILCO LAMINATED PRODS INC Ventilating Co Rudeen (N H) Co ST PAUL CORRUGATING CO SHEPLER MFG CO Staffine Inc
Super-Structure Inc
Swett (A L) Iron Works
Switt Mg Co
Trowbull Electric Mfg Co
Trowbull Electric Mfg Co
Trowbull Electric Mfg Co
Trowbull Blower Co
Trowbull Holet & Mfg Co
Ward (Edgar 71 Co
WESTINGHOUSE ELECTRIC COMP ELECTRIC APPLIANCE DIV

White's (S R) Sons Inc Williams Mill Co Inc Williams Steel Corp

#### **EQUIPMENT, FIREPLACE**

Adams Co Atlanta Store Works Barnhart (A W) Co BENNETT-IRELAND CO BENNETT-IRELAND CO
Builder's Fireplace & Supply Co
Chamberlin Co of America Inc
Chattanooga Implement & Mfg Co
Colonial Fireplace Co
Colonial Fireplace Co
Court (H W) Co
Cutter Mfg Co
Donler Bros Donley Bros Fox Valley Forge Gem Foundry Co
MEATILATOR CO
Howes (S M) Inc
Industrial Iron Works
Lieber (Chas A) Logan Co MAJESTIC CO METAL CRAFTERS Meyers (Fred L) Mfg Co OHIO FOUNDRY & MFG CO READYBUILT PRODUCTS CO creencraft Co heffield Manufacturing Co mith (F P) Wire & Iron Works Smith (John Pt Co SUPERIOR FIREPLACE CO Thermo-Bute Manufacturing Co Vestal Store Co Wickwire Spencer Steel Div Colorado Fuel & Iron Corp

#### EQUIPMENT, HOG

EQUIPMENT, HOG
Beatine Steet Task Mrg Co
Bernard (Phillip) Co
Bernard (Phillip) Co
Cellus Brower Mrg Co
Cellus Rouse Mrg Co
Cellus Control Cor
Cellus Control Cor
Cellus Control Cor
Cellus Control Cor
Cellus Co Olson Manufacturing Co Red Cross Manufacturing Co ST PAUL CORNUGATING CO Sioux Falla Metal Culvert Co Starline Inc

#### FANS, EXHAUST, WALL & **CEILING, ATTIC & KITCHEN**

Aerovent Fan Co AIR CONTROL PRODUCTS INC Airmaster Corp Air Temperature Inc American Blower Corp AMERICAN CENTRAL DIVISION AVCO MFG CO American Coolair Corp Arex Co Autowent Fan & Blower Co Bar-Brook Mfg Co Berns Mfg Co Broan Mfg Co Inc Ruffalo Forge Co Le B Mc Co A B Acc Co

Close-To-Nature Co
Cyclone Manufacturing Co
Des Maines Insulator Co
Excel Metal Cabinet Co InExcel Metal Cabinet Co InExceller Store & Manufacturing Co
GEREBAL ELECTRIC OF AIR CORDITIONFEE DEFT
General Implement Corp
Green Lumber Co
Harder Silo Co
Harder Silo Co
Husbon (H D) Manufacturing Co
Junes Manufacturing Co
Junes Manufacturing Co
Junes Manufacturing Co

James Manufacturing Co JOHNS-MANVILLE CORP Neen Equipment to Kleenfount Co Klein Manufacturing Co Laneaster Mfg Co Klein Manufacturing Co
Laneaster Mig Co
Leahy Mig Co
Miller (J W) Co
National Co
Miller (J W) Co
National Mig & Stamping Co
National Mig & Stamping Co
National Mig & Stamping Co
National Co
Leahy Co
Leah RELIANTE INCUBATOR & Brooder Co RILCO LAMINATED PRODUCTS INC 

#### ESCAPES, FIRE

RESPACED FIRE
ARTCRAFT ORNAMENTAL IRON CO
Badger Wire & Iron Works Ine
Belson Mfg Co
Davy Automatic Fire Escape Co
General Detroit Corp
Grand Rapids Wire Products Co
Logan Co
Mesley (George L) Stepl Corp
Mesley (George L) Logan Co Mesker (George L) Steel Corp METAL CRAFTERS St Paul Foundry & Manufacturing Co Smith (F P) Wire & Iron Works

#### **ESTIMATING SERVICES**

REMINGTON RAND INC Tamblyn Systems Underwood Corp

#### EXTINGUISHERS, FIRE

Allen (W D) Mfg Co American-La France Foamite Corp American La France Foamité Corp Autofrystop Co Boateiré Laboratories Boateiré Laboratories Genéral Detroit Corp Genéral Detroit Corp Genéral Detroit Corp Hotelaises (E. H. Co. Hotelaises (E. H. Co.

#### FABRICATORS, LUMBER

Timber Engineering Co WOODALL INDUSTRIES INC

### FABRIC, REINFORCING

Northwestern Steel & Wire Co PITTSBURGH STEEL PRODUCTS CO TRUSCON STEEL CO DIV REPUBLIC STEEL COURT

CHELSEA FAN & BLOWER CO Clarage Fan C Dayton Electric Mfg Co
De Botherat Fans Dis American Machine 4 FASTENERS, CONCRETE

Metals Inc DELCO APPLIANCE DIV GENERAL MOTORS Mfg Co Electrical Div Singer Mfg Co Eagle Picher Co EMERSON ELECTRIC MFG CO FASCO INDUSTRIES INC

General Blower Co
GENERAL ELECTRIC CO APPARATUS DEPT
HATZEIF FAM & Ventilating Co Inc
NO.COMB & HONE MFS CO
HUMBON (H) MFS CO
HUMTER FAN & VENTILATING CO

stries Inc mational Engineering Inc International James Mfg Co LAU BLOWER CO

Marient Co.
Machine To Co.
Machine To Co.
Mind Carline Toly Carry (PMilip)
MFG CO.
National Appliance Co.
National Esculpiment Co Inc.
Nelson (Herman) Corp.
Mrg Co.
Mrg Co. Ney Mfg Co NUTONE INC

Propellaire Inc PRYME & CO INC
Reed Unit-Fans Inc
Robbins & Myers Inc
Robbins & Myers Inc
Rousell Electric Co
Samson-United Corp
Schwitzer-Cummins Co
Sheet Metal Products Co
Shreensort Engineering Co
Shreensort Engineering Co
Standard Electric Co
Standard Electric Mig Co
Startine Inc ring Co

Starline Inc" STEWART MFG CO RADE-WIND MOTORFAMS INC.

TRADE WHEN MEDISTRAND INC Trane Co Universal Blower Co Con Ventilator Co Utility Appliance Corp Victor Electric Products Co Viking Air Conditioning Corp Wagner Electric Corp WESTINGHOUSE ELECTRIC CORP ELEC-TRIC APPLIANCE DIV

West Wind Corp Winco Ventilator Co

#### FANS, DRY KILN

American Blower Corp. Bar-Brook Mfg Co Champion Blower & Forge Co Clarage Fan Co Colloid Equipment Co Inc nal Engineering Moore Dry Kiln Co Standard Dry Kiln Co Trane Company Westinghouse Electric Corp Sturtevant Div

#### FANS, PORTABLE, WINDOW VENTILATING

Bar-Brook Mfg Co CHELSEA FAN & BLOWER CO Diehl Mig Co Electrical Div Singer Mig Co EMERSON ELECTRIC MFG CO FASCO INDUSTRIES INC General Rigger Co GENERAL ELECTRIC CO APPARATUS DEPT FELT, ROOFING, ASPHALT

Corp Ilg Electric Ventilating Co Louden Machinery Co MIAMI CABINET DIV CAREY (PHILIP) NFG CO NUTONE INC Peerless NE

Signal Electric Co
WESTINGHOUSE ELECTRIC CORP ELECTRIC APPLIANCE DIV
Winco Ventilator Co

#### FANS, VENTILATING, BARN, ELECTRIC

Allen Steel Products EMERSON ELECTRIC MFG CO GENERAL ELECTRIC CO APPARATUS DEPT Ward (Edgar T) Co Inc WESTINGHOUSE ELECTRIC CORP

#### FASTENERS, ASBESTOS, CEMENT, SIDING

E G BUILDING FASTENERS CORP ELASTIC STOP NUT CORP OF AMERICA

JOHNS-MANVILLE CORP ited States Gypu

### FORM

CETTY (H S) & CO INC Sommer Metalcraft Corp Starline Inc Williams Form Engineering Corp

#### FASTENERS, FIBER, WALLBOARD

Brush Nail Expansion Bolt Co INSULITE DIV MINNESOTA & ENTARIB PAPER CO Tinnerman Products Inc U S Expansion Bolt Co

#### FASTENERS, LATH, METAL

Berger Mfg Div Republic Steel 80STWICK STEEL LATH CO CECO STEEL PRODUCTS CO Goldsmith Metal Lath Co INLAND STEEL PRODUCTS CO NATIONAL GYPSUM CO Soule Steel Co TRUSCON STEEL CO

#### FASTENERS, STEEL, CORRUGATED

Acme Steel Co Independent Metal Strap Co Larson (Charles O) Co Packard (E B) Co Parker-Kalon Corp Parker-Kalon Corp Signode Steel Strapping Co STANLEY WORKS

#### FASTENERS, WOOD JOINT

Acme Steel Co blic Steel Corp Berger Mfg Div Republi COLUMBIA-STEEL CO Knape & Vogt Mfg Co LOCKWOOD HARDWARE WFG CO Packard (E B) Co RODDIS PLYWOOD CORP STANLEY WORKS

#### FEEDERS, SAW, LUMBER

Chase Turbine Mfg Co Corinth Machinery Co Corley Mfg Co Cunnincham Machy Corp Lane Mfg Co Power Development Co Inc Wheland Co Yates American Machine Ca Wheland Co Yates-American Machine Co

#### FELT, ROOFING

Bonafide Genasco Inc CELOTEX CORP CERTAIN-TEED PRODUCTS CORP Globe Roofing Products Co Inc Globe Roofing Products Logan-Long Ce Nelson (B F) Mfg Co PROTECTIVE PAPERS

### **IMPREGNATED**

American Asphalt Boof Co BARRETT BIV ALLIED CHEWICAL & BYE

CORP BIRD 4 SON INC CAREY (PHILIP) MFG CO FLINTXOTE CO OHNS-MANVILLE CORP Lehon Co Reilly Tar & Chemical Corp RICHKRAFT CO RUBEROID CO TEXAS CO ed States Gypnum Co

#### FENCE, BARBED WIRE

AMERICAN STEEL & WIRE CO Atlas Fence Co Badger Corrugating Co Continental Steel Corp Continental Steel Corp KEYSTONE STEEL & WINE CO MICHOLS WINE & ALUMINUM CO NOTHWESTERN STEEL PRODUCTS CO REPUBLIC STEEL CARD Sheffield Steel Corp Stewart Iron Works Co

TENNESSEE COAL IRON & RAILROAD CO FENCE, WIRE

#### FENCE, CHAIN LINK

American Chain Link Fence Co Anchor Post Products Inc Atlas Fence Co COPPERWELD STEEL CO yclone Fence Div American Steel & Wire Co rand Rapids Wire Products Co ogan Co Inc

Legan Co Inc
Mid States Reel & Wire Co
NICHELS WIRE & ALWINUM CO
Page Steel & Wire Div American Chain &
Cable Co Inc
PITSBURGH STEEL PROUCTS CO
Southern Wire & Iron Works
Ricwart Iron Works
Wickwire Spencer Steel Div Colorade Fuel &
Iron Corp

#### FENCE, ELECTRICALLY CHARGED

General Implement Corp National Metal Products Co RED DEVIL TOOLS Sampsel Time Control Inc

#### FENCE & GATES, LAWN, ORNAMENTAL

American Chain Link Fence Co AMERICAN STEEL & WIRE CO Anchor Post Fence Div Anchor Post Products ATDOI-Dain Corp.
ARTCRAFT GRNAMENTAL IRON CO.
Atlas Pence Co.

Belllo Belson Mfg Co Berger Mfg Co Div Republic Steel Corp Busch (A G) & Co Inc CECE STEEL PRODUCTS CO Chain-Link Fence Corp CINCINNATI IRON FENCE CO

Clay Equipment Co
COFFMAN (8 C) CO INC
Colorado Fuel & Iron Corp
COLUMBIA STEEL CO
Continental Steel Corp
Cyclone Fence Div American
Davis & Sichl Co erican Steel & Wire Co Davis & Siehl Co
Decatur Iron & Steel Co
Des Moines Ornamental Iron Co
FAWSCO MFG DIV FALLS STAMPING &
WELDING CO
Forbes Steel Corp

Franklin Equipment Co GENERAL BRONZE CORP General Implement Corp Hawkins Iron Co Inc Illinois Wire & Mfg Co International Steel Co KEYSTONE STEEL & WIRE CO METAL CRAFTERS Meyers (Frod L) Mfg Co

Meyenr (Fred L) MIG to Mid-States Rete! & Wire Co WICHOLS WHEE & ALUMINUM CO Northwestern Steel & Wire Co Page Steel & Wire Dir American Chain & Cable Co Instell PRODUCTS CO Putragungen Steel PRODUCTS CO Redwood Garden Materials Co Redwood Garden Materials Co Season Grassendal Iren Co Santher Fry Wire & Iron Works Inc Standard Mfg Co Stewart Iron Works Co Inc Tewart Iron Works Co Inc Wielsing Reproces Steel Dir Colorado Fuel & Wielsing Reproces Steel Dir Colorado Fuel &

#### FENCE, RUSTIC

Anchor Post Fence Div Anchor Post Products Inc Armid-Dain Corp Century Fence Co Elhide Co Fence Company of America Lineraft Inc MacGillia & Gibbs Co

Whiting Fence Co Wolfe (Harry M) Wood Products Co

#### FENCE, SNOW

Capitol Fence (E. 8) Lumber Co Gayone (E. 8) Lumber Co Humbold Fence & Supely Co Illinois Wire & Mfg Co Kinnan Pine Mills Co Linerart Inc Mattson Wire & Mfg Co Nebrasia Bridge Supply & Lumber Cs Rever Mfg Co Security Fence & Mfg Co Wheeler-Arnold Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

AMERICAN STEEL & WIRE CO Colorado Fuel & Iron Co COPPERWELD STEEL CO Forbes Steel Corp.
Joons & Laughlin Steel Co
KEYSTONE STEEL & WINE CO
Mid-States Steel & Wine Co
Mid-States Steel & Wine Co
PITTSBURGN STEEL PRODUCTS CO
REFUGALIC STEEL CORP.
TENNESSEE COAL HOOM & BALLSOAD CO
Wicksire Sponner Steel Div Colorado Fuel &
Wicksire Sponner Steel Div Colorado Fuel &

#### FENCE, WOOD

Arnold-Dain Corp Atlas Fence Co BRADLEY LUMBER CO OF ARK Capitol Fence Co MADLEY LUMBER CO OF ARK
Capitol Fence Co
Concord Woodworking Co
Concord Woodworking Co
Concord Woodworking Co
Consord Woodworking Co
Consord Woodworking Co
Davis & Sield Co
Elide Company
Fordree-Crownett Lumber Co
Front Lumber Industries Inc
Georgia-Pacific Plywood & Lumber Co
Hilmosi Wire & MER Co
Lineral Nuc
Margillis & Gibbs Co
Margillis & Gibbs Co
Mattoon Wire & MER Co
Lorent Nuc MacGillis & Gibbs Co
Matteon Wire & Mfg Co
Nobraska Bridge Supply & Lamber Co
Redwood Garden Materials Co
HOWE MFE CO NOWE MFC CR Silbernagel (George) & Hons Co Southern Lumber Co SOUTHERN PINE LUMBER CO EXAS Fence Co Whiting Fence Co Williamette Vailey Lomber Co Wilson (A K) Lumber Co Wolfe (Barry M) Wood Products Co

#### FERTILIZER, LAWN

Armour & Co Fertilizer Works Div Milwaukee Sewerage Commission Milwankee Sewerage Commissi Swift & Company Walker-Gordon Laboratory Co

#### FILERS, SAW, BAND, CIRCULAR, ETC

Atkins (E C) Co BOICE CRANE CO Works Chattanooga Saw Werks Corley Mfg Co DISSTON (HENRY) & SONS INC FOLEY MFG CO Hanchett Mfg Co Huther Brothers Saw Mfg Co

#### FILES & RASPS

merican Swiss File & Tool Co tkins (E C) Company helses File Works Delta File Works Inc DISSTON (NEMRY) & SONS INC Heller Brothers Hoc (R) & Company Inc. Hook Scraper Mfg Co International Twist Drill Corp Nicholson File Co Plumb (Fapette B) Ins to Tool Co DEVIL TOOLS IONDS SAW & STEEL CO

#### FILLERS, CRACK & JOINT

Acme White Lead & Color Works
Alabastine Paint Products Div Chicago
Bronze & Color Works Royer Chemical Luboratory Co Boyle-Midway Inc Central Paint & Varnish Works Chicago Bronse & Coise Works Consumers Give Co Durham (Donald) Company Illiott Paint & Varnish Co Gumputtie Laboratories
Johnston (E F) Paint C
Lusting Products Co
Lowe Brothers
NATIONAL GYPSUM CO
Painter Products n-Sargent Co Preors Paint Co Inc. PITTSBURGH PLATE GLASS CO. restite Engineering Co eardon Co cilly Tar & Chemical Corp Sanogran Co Schalk Chemical Co SERVICISED PRODUCTS CORP Sheffield Bronze & Paint Corp Smooth-On Mfg Co

Steelcote Mfg Co Stonbard Co Tamms Industries Inc Technical Supply Co Tilette Cement Co Inc United Gilsonite Laboratories US Gppsum Co Webb Products Co Wesen Waternaints

FILLERS, JOINT, SEWER PIPE

CAREY (PHILIP) MFG CO JOHNS-MANVILLE CORP Kaul Clay Mfg Co Keystone Asphalt Products Co Robinson Clay Product Co SERVICISED PRODUCTS CORP

FILLERS, WOOD

Acme White Lead & Color Works
Alabastine Paint Products Div Chicago
Bronse & Color Works
American Varnish Co
Berry Brothers Inc American Varuish Co
Berry Brothers Inc
Boyle-Midway Inc
Bradley & Yooman Co
Breining Brothers
BRUCE (E L) COMPANY
Chicago Brooms & Color Works
Decor & Expression Company
Chicago Brooms & Color Works
Decor & Expression Company
Chicago Brooms & Com Glidden Company Keystone Varnish Co Lowe Brothers Lowe Brothers
O'Brien Corp
Parker (Ira) & Bons
Patteron-Sargent Co
Peaules-Gaulbert Paint & Varnish Co
PitTSSBUSGR PLATE GLASS CO
Pratt & Lambert
Reardon Co
Savogran Co
Savogran Co
Schulk Chemical Co
Schulk Chemical Co Seidlitz Paint & Varnish Co Seidlitz Paint & Varnish Co Sheffield Bronze Paint Corp Sherwin-Williams Co Steeleote Mfg Co United Gilsonite Labora
U S PLYWOOD COMP
Webb Products Co
Wilbur & Williams Co

#### FILTERS, AIR

Atten Supply Co Frigidaire Division General Motors Corp 6WENS-CORNING FIBERGLAS CORP Research Products Co Trans Co

#### FINANCING SERVICES

ALLIED BUILDING CREDITS INC Commercial Credit Corp Douglas-Guardian Warehouse Corp Investors Syndicate
Lawrence Warehouse Co
NATIONAL LIFE INSURANCE CO
St Louis Terminal Warehouse Co
U S Savings & Loan League

FINISHER, CONCRETE FLOOR JAEGER MACHINE CO Whitman Mfg Co

### FINISHERS, WALLBOARD

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP Durham (Donald) Co JOHNS-MANVILLE CORP MARSH WALL PRODUCTS INC MATIONAL GYPSUM CO ardon Co halk Chemical Co U N Gypsum Co UPSON CO Wesco Waterpaints Inc

#### FINISHES, WATERPROOF, ASPHALT

Dewatex Mfg Corp

#### FINISHES & SEALER, FLOOR

PINISTES & JEARLEN, FACHORY
Abbastine Paint Products Dis Chicago
Bronce & Color Works
AMERICAN FLOOR SUBFACING MACHINE
COS
American Marieta Co.
Boston, Varnish Co.
Boston, Varnish Co.
BRUCE (E.) COMPANY
Camp Chemical Co Inc.
Persuad Chemical Corp. Camp Chemical Co Inc Camp Chemical Corp Chapman Chemical Corp Chicago Bronze & Color Works Chi-Namel Patht & Varnish Co Clarks Sanding Machine Co Continental Asbestos & Sanding Corp omar Co evoe & Raynolds Co Inc

Du Pont (F. I) De Nemours & Co Inc FLINTKOTE CO INC Franklin Benearch Co (A C) Company Inc nternational Chemical Co ohnson (S C) & Co Inc Johnson (8 C) & Co Inc
Lews Bros Co
Minnesota Mining & Mfg Co
Minnesota Mining & Co
Minnesota Mining & Co
Minnesota Mining & Co
Mi Technical Supply Co Tremco Mfg Co S PLYWOOD CORP Vita-Var Corp Waterlox Div Empire Varnish Co Wesco Waterpaints Inc Wethrill (Geo D) & Co X-Pando Corp

#### FIREPLACE, OUTDOOR & EQUIPMENT

BENNETT-IRELAND INC

Builder's Firepince & Supply Co Chattanooga Implement & Mfg Co Colonial Brass Co Douley Brothers Co Grill-Craft Co REWANEE MFG CO MAJESTIC CO Mexico Refractories Co Otto Stove Co Outdoor Oven Fireplace Co Outdoor Oren Fireplace Co Perfers Mig Coc BEATER & TANK CORP SHEPLER BEG CO SHEME Glow Oil Burner Corp Shilent Glow Oil Burner Corp Smith (FP) Wire & Iron Works Southern Barbeque Gill SUPERIOR FIREPLACE CO Vestal Stove Co Western Foundry Co Wiemann (Ernest) Iron Works

#### FIREPLACES, UNITS, METAL

MRIAL
Anderson Siver Co Inc
BENETY-IRELAND CO
BENETY-IRELAND CO
BENETY-IRELAND CO
Carry Industries
Corect (H WY CO
Doubley Bross
Doubley Bross
Hearthaire Conditioning Co
Hearthaire Conditioning Co
Hearthaire Conditioning Co
Hearthaire Tristop Fireplace Co
MAIESTIC CO
MAIESTIC CO
MAIESTIC CO
SUPERIOR FIREPLACE HEATER ATANX CORP
SHEPLES MREG CO
SUPERIOR FIREPLACE CO
SUPERIOR FIREPLACE CO

#### **▶** FIREPROOFING COMPOUNDS, WOOD

Acme Flame Control Corp Albi Chemical Corp American Lumber & Treating Co Boyer Chemical Laboratory Co-Camp Chemical Co Inc Camp Cremical Co
DuFont (E I) de Namours & Co
Konpers Co Inc
McKoown Brothers
Monsanto Chemical Co
Price Fire & Water Proofing Co
Protexol Corp Sullivan Co Wayne Chemical Products Co Wilbur & Williams Co

#### FITTINGS, ELECTRIC

opieton Electric Co row Hart & Hegeman Electric Co yant Electric Co Bryant Electric Co
GEMERAL ELECTRIC CO CONSTRUCTION
MATERIALS DEPT
GITM Modding Corp
Hitho Engineering Co
Hubbell (Harvey) Inc
Laminated Metals Products Corp

FITTINGS, PLUMBING & HEATING

American Copper & Bram Works AMERICAN RADIATOR & STANDARD SANI-TARY CEEP

American
Autopre Co
Barres Mig Co
Barres Mig Co
BRIGGS MFG CO
BRIGGS MFG CO
Byers (A M) Co
CASE (W A) 4 89M MFC CO
Central Brans Mig Co
CHASE BRASS & COPPER CO
Chicago Fracet Co
Chicago Fracet Co Chicago Faites. Co
Conduit Pipe Products Co
CRANE COMPANY
Dart (E M) Mfg Co
Detroit Brass & Malleable Works
Dick Brothers Inc
Durst Mfg Co
State Co Durch Mfg Co
ELIER CO
Firestone Time & Robber Co
Firestone Time & Co
Glauber Braine
Grabber Mfg Co
Harrey Machine Co Ine
James Mfg Co
Harrey Machine Co Ine
James Mfg Co
Keinghis (James) Company
KOMLER CO
McDonnald (A Y) Mfg Co
McDonnald (A Y) Mfg Co
Fenberthy Injector Co
Powell (William) Co
Fenberthy Injector Co
Powell (William) Co
Fenberthy Injector Co
Powell (William) Co
Royallo C Durst Mfg ELJER CO Schaible Co Scovill Mfg Co Sherman (H B) Mfg Co Speakman Co THRUSH (H A) CO Trane Company Trenton Pipe Nipple Corp UNIVERSAL-RUNDLE CORP Walworth Co Wolff Mfg Co Youngstown Steel Products Co

American Sanitary Mfg Co

#### FIXTURES, BLACKBOARD Austral Sales Corp

#### FIXTURES, ELECTRIC INCANDESCENT LIGHT

Rell Electric Company
Berlaim Electric Mg Co
Bryant Electric Co
Cortis Lighting Inc
Cortis Lighting Inc
Cortis Lighting Inc
Frink Cort
Glasoiler Co
Globe Lighting Products Ine
Goth (Edwin P) Co
Holophane Co Inc
Home-Craft Electronic Products
Keet (F D) Mfg Co
Keet (F D) Mfg Co
La Salle Products
Lightinier Co Lightolier Co
MARKEL ELECTRIC PRODUCTS CO
Metallic Aris of New Products Metallic Arts of New E Miller Co Moe Brothers Mfg Co Neo-Ray Products Inc Old Guilford Forge PRIVATE ACTION FOR THE PRIVATE ACTION OF THE Superior Flastics Div Commonwest Inc Swain & Bridge Swiveller Co Sylvania Electric Products Inc TECHNICAL GLASS CO INC Tuttle & Balley Virden & CO WESTINGHOUSE ELECTRIC CORP

#### FIXTURES, FLUORESCENT

Alkeo Mfg Co Benjamin Electric Co Cupples Co Curtis Lighting Inc Curin Lighting Inc
Day-Brite Lighting Inc
Eagle Electric Mfg Co Inc
Fluorescent Fabricators Div Easy-Eye Lighting Inc
Fluorescent Lighting Co Frink Corp GENERAL ELECTRIC CO APPARATUS DEPT GENERAL ELECTRIC Guth (Edwin F) Co Ingram-Bichardson Mfg Co International Lighting Co Lightelier Co Long (W H) Co Long (W H) Co Metaleral Screen Co MIAMI CABINET DIV CABEY (PHILIP) MFC CO Modern Light & Equipment Co Noc-Bay Products Inc Smitheral Lighting Div Superior Plattics Div Commonwealth Plastic Inc Virden & Co WESTINGHOUSE ELECTRIC CORP Wheeler Redector Co Wiley (R & W) Corp

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Abingdon Potteries
ALLIANCEWARE INC
AMERICAN READINING & STANDARD SANITAY CORP
BENEFO (Thomas W) Inc
BOWES POLICE, Co.
BRILGE
BRILDE
BRILDE
BRILDE
BRILGE
BRILDE
BRITANDA
BRILDE
BRITANDA
BRILDE
BRITANDA
BRITANDA
BRITANDA
BRITANDA
BRITANDA
BRITANDA
BRITANDA
BRITANDA
BRITANDA
BRITAD BRIGGS MFG CO
Camden Pottery Dir Universal-Rundle Corp.
CASE (W A) 4 SON MFG CO
Chicago Pottery Co Clow (James B) & Sons GRANE COMPANY CHAME COMPANY
Douglas (John) Cu
ELIE ER
General Ceramics & Steatite Corp Sanitary
Ware Div
Haboca Corp
Harvey Machine Co Ine
Harvey Machine Co Ine
Harvey Machine Co
Ball ER
Ball ER
Ball ER
Ball ER
Ball ER
Ball ER
Ball ER Humphreys Mfg Co
HamLer Co
HamLer Co
Mansleld Sanitary Pottery Co
Mansleld Sanitary Pottery Co
Mansleld Sanitary Pottery Co
Margione (David) Tool Corp
McDonaid (A Y) Mfg Co
HILWAUKEE FLUSH VALVE CO
HULLINS MFG CO
HUMLINS MFG CO
HUMPHRESS MFG CO MUTTAY Corp of America National Plumbing Pixture Corp Pioneer Co Price-Pfixter Brass Mfg Co Repeal Brass Mfg Co RICHMOND RADIATOR CO Robinson Clay Product Co Schalbe Co Sherman (H B) Mfg Co Shobe & Co Inc Speakman Chower Corp Trenton Potteries Co U S Sanitary Mfg Co UMIVERSAL-RUMBLE CORP

#### FIXTURES, SHARPENING Treyen Products

FIXTURES, SHOWER American Brass Mfg Co AMERICAN RADIATOR & STANDARD SANI-TARY CORP Streamaster Shower Corp

#### FIXTURES, STORE LIGHTING

Garden City Flating & Mfg Co GENERAL ELECTRIC COMPANY APPARATUS DEPT Mitchell Mfg Co Swivelier Co Sylvania Electric Products Inc WESTINGHOUSE ELECTRIC CORP

#### FIXTURES & MATERIALS. STORE DISPLAY

Abacot Displays
A B C Cabinet Fixture Works
A B C Cabinet Fixture Works
Adler-Jones Co
Allied Display Materials
American Fixture & Mfg Company
American Piywood Corp
Ames (W B) Company
Barnes Mfg Co
Barnes Mfg Co
Barnes Mfg Co Div Roughlie Steel C Berger Mfg Co Div Republic Steel Corp BIL-JAX CO Bruser-Hitchener Corp
Bruser-Hitchener Corp
Chicago Card Bolder Co
Colgate Mfg Corp
Columbus Show Case Co
Commonwealth Flastics Inc Superior Plastics
Div
Div
Div
Superior Case Co
Display Craft
Flastics Case Co

Detroit Show Case Co
Display Graft
FWHMUCK CO
Display Graft
FWHMUCK CO
FUILEY Displays Inc
FUILEY Displays Inc
Graft Company
Garrison-Wagner Printing Co
Grand City Flating & Mfg Company
Garrison-Wagner Printing Co
Grand Rapide Store Equipment Co
Hampden Mfg Co Inc
Heller (W C) & Co
Formal Company
Franchise Co
Formal Company
Franchise Co
Formal Company
Franchise Co
Liberaters
Liberaters
Liberaters
Formal Comp
May-Bill Inc
May-Bill Inc
Metal Decorating & Mfg Co
Multiplex Display Fixture Co
National Rawbult Co
Section Co
Formal Co
Formal Co
Formal Co
Formal Co
Metal Decorating & Mfg Co
Multiplex Display Fixture Co
National Rawbult Co
Formal Reardon Co RED DEVIL TOOLS Refector Hardware C Scheuer Creations Inc. Corp

Rebusta Showell Corp
Simples Store Equipment Ine
Silka Signes Limber & Mig Co
Sagaford Wood Products Co
Sagaford Wood Products Co
Sillivator Mig Co
Sillivator Mig Co
Store Engineering Co
Store Engineering Co
Store Engineering Co
Store Engineering Co
Universal Equipment Co
Wardell Company Ine
Warner Mig Co
Warner Mig Co
Warner (B) D) Mig Co

#### **FLAGSTONES**

Caroline Flagstone Ce Evergreen Slate Co Inc Landscape Slate & Roofing Co Inc Tennessee Stone Company Inc

#### **▶** FLAMEPROOFING COMPOUNDS

Astrup Co Astrup Co Classics Products Corp Diversey Corp Flame-Seal Corp Fox Brothers Mfg Co Kuhls (H B Fred) Fer-Mo Mothproof Co Reardon Co Trojan Products & Mfg Co Wayne Chemical Froducts Co

#### FLANGES, FLUE

Adams Co Chattanooga Implement & Mfg Co Columbia Pipe Co Evans Pipe Co Kees (F D) Mfg Co

#### FLASHING, ALUMINUM

ntral Products w Holland Meta New Holland Metals Co NICHOLS WIRE & ALUMINUM CO REYNOLDS METALS CO BUILDING PRODS DIV

#### FLASHING, COPPER

American Brass Co. Angier Corp BARRETT DIV ALLIED CHEMICAL & DYE CECO STEEL PRODUCTS CO Central Products Co CHASE BRASS & COPPER CO Hussey (C G) Co
iniand STEEL PRODUCTS CO
Bevere Copper & Brass Co
ST PAUL CORRUGATING CO
SISALKRAFT CO
Wasco Flashing Co

#### FLASHING, LEAD

Division Lead Co National Lead Co Rochester Lead Works

#### FLASHING, METAL, GALVANIZED

Allen Steel Products
AMERICAN STEEL & WIRE CO
Berger Mfg Div Republic Steel Corp.
CECO STEEL PRODUCTS CO Central Products Co Chency Industries Continental Steel Corp Continental Steer
Edwards Mfg Co
ELINTROTE CO INC
Ploneer Steel Corp Gary-Fioners Steel Corp Illinois Zinc Corp Illinois Zinc Corp Illinois Zinc Corp Illinois Zinc Corp Mctal Tile Products Inc. On Corp Corp Mctal Tile Products Inc. On Corp Corp Mctal Troducts Inc. Penn Supply & Mctal Corp McTyusit CS TEEL Comp ST PAUL COMMUNICATING CO Sealow Products Inc. United States Steel Co. Wheeling Corrugating Co.

#### FLASHING, PAPER TREATED

Angier Corporation CAREY (PHILIP) MFG CO JOHNS-MANVILLE COMP PROTECTIVE PAPERS INC RICHKRAFT CO RUBEROID CO ST PAUL CORRUGATING CO

#### FLASHING, RUBBER Bubber & Plastic Coated Products Co Inc

FLOATS, CONCRETE VIBRATING STATREM CO.

FLOATS, TANK American Sanitary Mfg Co Ayling & Beichert Co Detroit Float & Stamping Corp Scovill Mfg Co Williams-Bowman Bubber Co

#### FLOORING, BASEWOOD LAMINATED

Winskraft Industries Inc

FLOORING, BLOCK BRADLEY LUMBER CB BRUCE (E L) CB Cincinnati Floor Co CONNOR LUMBER AND LAND CB Cromar Co
Evans Hardwood Flooring Co
FAIR (D L) LBR CO
Farrin (M B) Lbr Co
Georgia-Pacific Piywood Co
Harris Mig Co
MIGGINS INC MIGAINS INC
Holt Hardwood Co
Hurtshore Oak Floring Co Ene
Murtshore Oak Floring Co
Miller Brea Co Inc
Miller Brea Co Inc
North Branch Floring Co
Paxton (Frank) Lie Co
Robbins Flooring Co
Robbins Flooring Co
Stuart Lumber Corp
Virginis Oak Flooring Co

### FLOORING, CORK ARMSTRUME CARN EN Cork Insulation Co Inc Dodge Cork Co Inc KENTILE INC

#### FLOORING, FIR

Giustina Bros Lumber Co Bines (Edward) Lumber Co Johnson (C D) Lumber Corp Long-Bell Lumber Corp American Lumber Corp Oregon-American Lumber Corp Robinson Mfg Co Robinson Plywood & Timber Co Silbernagel (George J) & Sons Co WEYERHAEUSER SALES CO

### FLOORING, HARDWOOD, Anderson-Tully Co Arkansas Gak Flooring Co Atlanta Gak Flooring Co Rabcock Lumber Co

Atlanta van Floring Co BRADLEY LUMBER 69 97 ARK BRUCE (L.) 60 Central Oak Product Co Clorke County Lumber Mills Colocial Hardwood Flooring Co Cook (P. C.) & Co Cutton & Hanlon CONSSETT LUMBER 60 CHESSETT LUBBER CD
Dalley Flooring Corp.
Emportum Forestry Co
Emportum Forestry Co
Emportum Forestry Co
FAMR (G L) LUBBER CS
FAMR (G L) LUBBER CS
FAMR (G L) LUBBER CS
Fronty-c-Crosset Lumber Co
Frost Lamber Thousaries Terrot Lumber To
Frost Lumber Thousaries Terrot Lumber Co
Georgia McLife Trymood & Lumber Co
Holt Hardwood Flooring Co
Kenora Hardwood Flooring Co
Kenora Hardwood Flooring Co
LONG-BELL LUBBER CS
Marsh Lumber Co
Marsh Lumber Co Leathers (A B) Mig Co
Loud-Bell, LUMBER CO
LONG-BELL LUMBER CO
McMinnellle Mig Co
McMinnellle Mig Co
Memphile Hardwood Flooring Co
Memphile Hardwood Flooring Co
Mobile River Saw Mill Co
Mosery Enchoses Inc
Niewy Enchoses Inc
Farmell Lumber Co
Farmell Lumber Co
Farmell Lumber Co
Fallell Saw Co
Silbernagel (Goo J)
Southern Lumber Co
Southern Lumber Co SOUTHERN FIRE & LUMBER SHART LUMBER COP Texosk Flooring Co Tibbals Flooring Co Virginia Oak Flooring Co Webster (H E) Lumber Co Wells (J W) Lumber Co Williams & Voris Lumber Co Wood-Monale Co Inc Yawker-Bissell Lumber Cop

### FLOORING, HARDWOOD,

Atlanta Oak Flooring Co Bahoosk Lumber Co Clarke County Lumber Mills CONNOR LUMBER & LAND CO Cotton & Hanlon

Dalley Flooring Corp
Emporium Forestry Co
Farrin (M B) Lumber Co
Goorgia-Pacific Plywood & Lumber Co
Goorgia-Pacific Plywood & Lumber Co
Miller Bruthers Co
Miller Bruthers Co
Miller Bruthers Co
Miller Bruthers Co
Nickey Bruthers Inc
Scherbler (William C)
Scherbler (William C)
Silbertangel (Goo J)
Wood-Mostaic Company Inc

### FLOORING, HARDWOOD,

Roc Wood Flooring Inc

### FLOORING, HARDWOOD

Marsh Lumber Co
McKimorille Mig Co
McKimorille Mig Co
Miller Brothers Co
Miller Brothers Co
Mower Lumber Co
Mower Lumber Co
Mower Lumber Co
North Branch Flooring Co
Mower (E C) Ex
Mower (E C) Co
Fatton (Frank) Lumber Co
Fatton (Frank) Lumber Co
Fatton (Frank) Lumber Co
Fatton (Frank) Lumber Co
Fortillips-Hipps Lumber Co
Schreiber (William C) Lumber Co
Schreiber (William C) Lumber Co
Fortillips-Hipps Lumber Co
Tibbale Flooring Co
Wood-Mosale Co
Weller (I E Lumber Co
Weller (I W) Lumber Co
Wood-Mosale Co Jne
Wood-Mosale Co

### FLOORING, HARDWOOD

Cotton & Hamlon
Cromar Co
CRESSETY LUMBER CO
Dalley Flooring Corp
De Solo Hardwood Flooring Co
ENGRESH CO
ENGRAPH CO
ENGRAPH
ENGRAP

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Holt Hardwood Co Hurtsborn Oak Flooring Co Inc Industrial Lumber Co Kirby Lumber Corp Lancaster Corp Lancaster Corp Hardwood Flooring Co (A H) Mfg Co LONG-BELL LUMBER CO LONG-SELL LUMBER CO
Marb Lumber Co
McMinnrille Mfg Co
McMinnrille Mfg Co
McMinnrille Mfg Co
Menth Lumber Co
Memphil Hardwood Flooring Co
Merce Lumber Co
Memphil Hardwood Flooring Co
Miller Brothers Co
Miller Brothers Co
Miller Brothers Co
Miller Row Mill Co
Monterey Hardwood Flooring Co
Misser Lumber Co
Nictobs & Cox Lumber Co
Nictobs & Cox Lumber Co
Owen (& C) Co
Owen (& C) Co
Owen (& C) Co
Owen Cox Flooring Co
Farnell Lumber Co
Ecolobia Flooring Co
Ecolobia Floorin Silbernagai (George J) & Some (Southern Lomber Co-Southern Lomber Co-Southern Fine Co-Fine Co-

### FLOORING, HARDWOOD

Anderson-Tully Co Arkannas Gak Flooring Co SRADLEY LUMBER CO OF ARK SRUCE (E L) CO Clarke County Lumber Mills FAIR (B L) LER CO Fordyce-Crossett Lumber Co FAIR (0 L) LBR CG
Frost Limiter Lindustries. Tan
Georgia-Facilie Plywood & Lomber Co
Hallett Mfg Co
Hallett Mfg Co
Header Co
Header Mfg Co
Meadow River Lumber Co
Menghis Hardwood Flooring Co
Millet & Co Inc
Mollet River Saw Mill Co
Mole River Low Co
Oven (8 C) Co
Oven (8 C) Co
Oven (8 C) Co
Oven (8 C) Co
Oven (9 C) Co
Silbernapel (George J) & Som Co
Southern Lumber Co SOUTHERN PINE LUMBER CO Texoak Flooring Co Twin City Hardwood Lumber Co

#### FLOORING, PINE

Balonck Louther Fo
Barnes Lumber Co
Barnes (P M) Lumber Co
Good Control Colored C Kirby Lumber Corp Lightaer Brothers LONG-BELL LUMBER CO Stiller & Co Inc Phillips-Rhyne Lumber Co Scotch Lumber Co Sibernagel (George J) & Sons Co Southern Lumber Co SOUTHERN PINE LUMBER CO

#### FLOORING, HARDWOOD, PRE-FINISHED

BRADLEY LUMBER CO OF ARK BRUCE (E L) CO Cincinnati Floor Co Cromar Co FAIR (D L) LUMBER CO HIGGINS INC Memphis Oak Flooring Co

#### FLOORING, MARBLE

FLOORING, PARQUETRY

BATGET (P M) Lumber Co BRADLEY LUMBER CO OF ARK BRUCE (E L) CO CONNOR LUMBER & LAND CO Cromar Co FAIR (D L) LUMBER CO Farrin (M B) Lumber Co Farrin (M B) Lumber Cu Georgia-Parific Plywood & Lumber Co Harris Mfg Co HASKELITE MFG CORP NARKLIE W. ONF Newcastle Influstries Inc Fraton (Frank) Lumber Co Pearson Hardwood Flooring Co Robbins Flooring Co Silbernagel (George J) & Sons Co Stuart Lumber Cop Tronk Flooring Co Twin City Bardwood Lumber Co Vitginia Oak Flooring Co

#### FLOORING, PLANK

FILORING, PLANK
Anderson-Tully Co
Arbanas Oak Flooring Co
Arbanas Oak Flooring Co
BRADLEY LUMBER CO
BRADLEY LUMBER CO
BRADLEY LUMBER CO
Central Gal Product Co
Central Gal Product Co
Central Gal Product Co
Cotton & Handson
Flooring Co
Cotton & Handson
Flooring Co
Cotton & Handson
Flooring Co
Front Hardwood Flooring Co
Front Lumber Ludwirfer Inc
Georgia-Pacific Flywood Co
Hotel Hardwood For Floor
Louder Industries Inc
Georgia-Pacific Flywood Co
Loude-Bell Lumber Co
Lou LONG-SELL LUBBER CO Marsh Lumber Co Inc Meddom River Lumber Co Memphis Hardwood Flooring Co Miller Bras Co Inc. Parton (Frank) Lumber Co Patton (Frank) Lumber Co Patton (Frank) Lumber Co Reset (10 M) & Co Rect (20 M) & Co Inc. (20 M) & Co Memory Co Inc. Miller Bras Co Inc. Miller Bras Co Inc. Miller Bras Co Inc. Miller Co Inc.

#### FLOORING, RUBBER

ARMSTRONG CORK CO Flash-Stone Company Inc Johnson Industries Inc RCA SUSSER CO Boxdale Building Products Corp SERVICISED PRODUCTS CORP

FLOORING, STEEL

Armeo Drainage & Metal Products Inc Blaw-Knox Div Blaw-Knox Co FENESTRA BUILDING PRODUCTS niand Steet Co nternational Steet Co ones & Laughin Steet Co dahon (R C) Co Open Steel Flooring Institute Inc. Wheeling Corrugating Co WRIGHT MFG CO

FLOORING, SUB-COMPOSITE
BARRETT DIV ALLIED CHEMICAL & DYE
CORP

FLOORING UNDERLAYMENT ARMSTRONG CORK CO BUILDING MATE-

Genaseo Inc Camp Co Consumers Glue Co
FLINTROTE CO
Keystone Asphalt Products Co
MASONITE CORP
MIRACLE ADMESIVES CORP
Ploneer Latex & Chemical Co Inc
Plantage Corp. Plaswood Corp PROTECTIVE PAPERS INC Selly Battersby & Co SERVICISED PRODUCTS COMP Sloan-Blabon Corp Tamms Industries Ine Tile-Tex Div Flintkote Co

FLOOR POLISHERS

BLACK & DECKER MFG CO BRADFORD MACHINE TOOL CO BRUCE (E L) CO PHINDS CO MALL TOOL CO MILWAUKEE ELECTRIC TOOL CORP PITTSBURGN PLATE GLASS CO

FLOOR RESURFACERS

Acme Asbestoe Covering & Flooring Co Adensite Co

American Fluresit Co Inc Anti-Hydro Waterproofing Co Anti-Hydro Waterprossing Camp Company Ceresit Waterproofing Corp Coddington (E D) Mfg Co Consumers Glue Co Curtis Mfg & Asbestos Co Evererete Corp Flash-Stone Company Ine Firstock Co Glidden Co Horn (A C) Co Juferete Co Inc Kepstone Asphalt Products Co Master Builders Co MIRACLE ADNESIVES CORP lourse Co Inc HORE (GOODLOE E) CO

Reardon Co
Roc-Wood Flooring Inc
Rutland Fire Clay Co
Schalk Chemical Co
Schol Battersby & Co
Smooth-On Mfg Co
Sonneborn (L.) Sons Inc
Spray-O-Bond Co
Steeleste Mfg Co Steelcote Mfg Co Stonhard Co Tamms Industries Inc Truscon Laboratories Div Devoe & Raynolds

forete Co Inc

FLOORS, GRANOLITHIC

Kalman Floor Co Inc

FLOORS & CEILINGS, PRE-**CAST, CONCRETE UNIT** 

Alabama Cement Tile Co Flexicore Co Inc Permacrete Products Corp Brothers Co Mfg Co

FLOOR WAXERS, ELECTRIC

Algoma Mfg Co AMERICAN FLOOR SURFACING MACHINE CO SHUGE (E L) CO Clarke Sanding Machine Co Clarke Sanding Machine Fay Floor Machine Co General Floorcraft Inc Hild Floor Machine Co Alld From Bligge Co Holt Mfg Co Johnson (S C) & Son Inc Kent Co Inc Landers Frary & Clark Lincoln-Schimeter Floor Machine Co

FLOWER BOXES

AIR CONTROL PRODUCTS INC Arterete Products Co
FAWSCO MFG DIV FALLS STAMPING &
WELDING CO Metal Products Co Puwell Pressed Steel Co Rustic Crafts Co Inc

FLUE BASES

Chattanooga Implement & Mfg Co Evans Pipe Co Gedge Bros Steel Roofing Co Industrial Iron Works Streator Drain Tile Co Wayne Agricultural Works Inc Wheeling Corrugating Co

FLUE RINGS

s Co Steel Products strent steel Products
Cannellon Sewer Pipe Co Inc
Chattanonga. Implement & Mfg Co
Clay City Pipe Co
Columbia Pipe Co
Dee Clay Products Inc
Blekey W S) Clay Mfg Co
Douley Brothers
Evans Pipe Co. MAJESTIC CO Sterling Foundry Co Inc Streator Drain Tile Co Swett (A L) Iron Works

FLUES. ASBESTOS-CEMENT CAREY (PHILIP) MFG CO JOHNS-MANVILLE CORP

FLUES & CHIMNEYS PREFABRICATED

Vitrified Products Co. Chimney Sales Co CONDENSATION ENGINEERING CORP GBN-WAY HOMES INC Houston Blow Pipe & Sheet Metal Works MAJESTIC CO Southern States Iron Roofing Co VAN PACKER CORP

FLUX, SOLDERING

American Varnish Co Belmont Smetting & Reftning Works Boyer Chemical Laboratory Co Du Pont (E I) de Nemoura & Co Eagle-Picher Co Lake Chemical Co National Lead Co Wall (P) Mfg.Co Warne Chemical Products Co

FORMS, KEY Buffalo Produ

FORMS, SILO UNIVERSAL FORM CLAMP CO

FOUNTAINS, DRINKING

AMERICAN RADIATOR 4 STANDARD SANI-Haws Drinking Fancet Co Taylor (Halsey W) Co

FRAMES, DOOR & WINDOW, METAL ina Steel Products Corp minum Window Corp

AMERICAN WELDING & MFC CO Dayler (William)

Brasco Mig Co CECO STEEL PRODUCTS CO Compo-Miracle Products Co
COPCO STEEL & ENGINEERING CO
Crittall Inc Critical Inc
Dahlstrom Metallic Door Co
Decatur from & Steel Co
Dieboid Co Inc
FEMESTER & BUILDING PRODUCTS
HOPE'S WINDOWS International Steel Co KEWAREE MFG CO Knapp Brothers Mfg Co Meaker Brothers Iron Co METAL CRAFTERS National Kalamein Co Inc ONE-DER FRAME CORP PITTSBURGH PLATE GLASS CO Richmond Firented Deer Co Richmond Fireproof Door Co RICHARDS-WILCOX MFG CO Soule Strel Co Southern Wire & Iron Works STEELCRAFT MFG CO SIERLEMAPY MPG CO RECTING WINDOWS INC TRULINE DEVELOPMENTS TRUSINE STELL CO UNITED STEEL FARRICATORS INC VIRGINIA METAL PRODUCTS CO V-Senal Mfg Co Wollanger Steel Corp Woodward Lumber Co

FRAMES, DOOR, WOOD

American Sash & Door Co Biles-Coleman Lumber Co Inc Burke Millwork Co CARR ADAMS & COLLIER CO Cole Mfg Co CROSSETT LUMBER CO CURTIS COS INC CURTIS COS INC
Deer Park Pine Industry Inc
Dierks Lumber & Coal Co
Farley & Loetscher Mfg Co
Fordyce-Cromett Lumber Co
General Panel Corp. Fordere tamel Corp General Panel Corp EXECG & NOW Unseier Rash & Door Co Hoosier Basn & Huttig Mfg Co Huttig Bash & Door Co Hude-Murphy Co Keystone Frame & Mfg Co Kinzua Pine Mills Co Lockwood Wood Products LONG-BELL LUMBER CO Malta Mfg Co Malta Mfg Co Marquart Millwork Co Millwork Distributors Millwork Distributors
Morgan Ca
Morgan Sash & Door Co
Morgan Sash & Door Co
Pacific Mutual Boor Co
Roach & Musser Mg Co
Rock Island Millwork Co
Seneca Lumber & Millwork Co
Southern Lumber Co
Stothern Lumber Co
Southern Lumber Co
Southern Lumber Co Washington Mfg Co WEYERNAEUSER SALES CO

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64 FRAMES, METAL FOR STRUCTURAL GLASS

Brasco Mfg Co Dusing & Hunt Inc KAWNEER CO PITTSBURGH PLATE GLASS CO Sterling Windows Inc

FRAMES, SINK WELL

BRIGGS MFG CO B & T METALS CO National Guard Products SELCK (WALTER E) & CO Werner (R D) Co Youngstown Mfg Inc

FRAMES, WINDOW, WOOD

American Sash & Door Co ber Co Inc IROWN-GRAVES CO CARR ADAMS & COLLIER CO COURTS COST TO THE CONTROL OF THE CO Keystone Frame & Mig Co Kinnia Pine Milli Co Lockwood Wood Product Co Marquart Millwork Co Morgan Sash E Door Co Perille Minus House Co Morgan Sash & Door Co Perille Minus Door Co Perille Minus Door Co Security Company Co Spokane Sash & Door Co WEYERHAEUSER SALES CO White Pine Sash Co

FRAMING, STEEL

ma Metal La American Bethiebem Steel Brasco Mfg Co Brasco Mfg Co Prest & Son GREAT LAKES STEEL CORP INLAND STEEL PRODUCTS CO International Steel Co Jones & Laughlin Steel Corp LACLEDE STEEL CO Macomber Inc
Mesker (George L) Steel Corp
NATIONAL CYPSUM CO
Penn Metal Co Inc
REPUBLIC STEEL COMP
Soule Steel Co Southern Wire & Iron Works STRAN STEEL DIV CREAT LAKES STEEL CORP
TENNESSEE COAL IRON 4 RR CO
TRUSCON STEEL CO Unistrut Products Co
UNITED STEEL FABRICATORS INC

FRONTS, STORE

Binswanger & Co Brasco Mfg Co Compo-Mirscie Products Co Fentron Steel Works Inc Compo-Miracle Products Co Fention Steel Works Inc GERERAL BRONZE CORP General Procelain Enameling & Mfs Ingram-Richardson Mfg Co KANNEER ER-FORD GLASS CO Nation Inc. Nation Inc. Parker (8) Hardware Mfg Co Pennsylvanis, Wire Glass Co PHITSBURGH PLATE GLASS CO Sepancel Procelain Metals Inc ing & Mfg Co Seaporcel Porcelain Metals Inc Rohm & Haas Co Wolvering Porcelain Enameling Co

**FUNGICIDES** 

American Cyanamid Co California Spray-Chemical Corp Central Chemical Corp Dow Chemical Co General Chemical Div Allied Chemical & Dye General Chemicas DV Altura Valleria Corp. Grasselli Chemical Dept Du Pott (E I) de Nemours & Co Inc Hammond Paint & Chemical Co Hammond Paint & Chemical Co PHITSBURGH PLATE GLASS CO Robus & Hass Co Inc Sherwin Williams Co Wood-Treating Chemicals Co

#### FURNACE PIPE & FITTINGS

INLAND STEEL PRODUCTS CO. Krauser-Boyd Inc La Crosse Steel Boofing & Corrugating Co Northwest Metal Products Penn Supply & Metal Corp Beeves Steel & Mig Co REYNOLDS METALS CO Sioux Steel Co Waterman Waterbury Co Wheeling Corrugating Co Williams-Wallace Co

#### FURNACES, CHIMNEY

Airtemp Div Chrysler Corp.

#### FURNACES, COAL

CRAME COMPANY
Downglas Riche Furnace Co
Excelsion Store & Mfg Co
Hearly Furnace Co.
Homer Furnace Co.
Homer Furnace & Foundary Corp.
Homer Furnace & Foundary Corp.
Ingernell Steel Dits Borz-Warner Corp.
International Heater Co.
Into Fireman Co.
Krauser-Boyd line
Lennon Furnace Co.

Lember Furnish Co
MAJESTIC CO
MAJESTIC CO
MAJESTIC CO
MATESTIC CO
METER FURNACE CO
METER FURNACE CO
METER FURNACE CO
OTHER CO
OTH Pioneer Co
Rybolt Heater Co
Thatcher Furnace Co
Waterman-Waterbury Co
Wayne Home Equipment
Wheeling Furnace Corp

#### FURNACES, CONVERTIBLE, COAL, OIL, OR GAS

International Heater Co

#### FURNACES, COUNTERFLOW STINU

International Heater Co

#### FURNACES, FLOOR

Airtemp Dir Chrysler Corp AMERICAN RADIATOR & STANDARD SANI-FAMILY SERVICE CO BRYANT MEATER DIV AFFILIATED CAS EQUIPMENT INC Cole Not Blant Mfg Co COBENNA CO INC CORDAIRE MEATER CORP e Store Co
e Store Co Div Noma Electric Co
elor Store & Mfg Co
Products Co Evans Products Co Billen (J L) Co Hem Warming & Ventilating Co NGLLY MFG CO Hotstream Heater Co INTERNATIONAL DIL BURNER CO resky Mfg Co RESNO STAMM MFG CORP Lennox Furnace Co LITTLE (N C) BURNER CO Lonergan Mfg Co MAJESTIC CO Motor Wheel Corp Duo Therm Div NORGE HEAT DIV BORG-WARNER CORP NORMAN PRODUCTS Oilux Co Payne Furnace Co Perfection Store Co Pioneer Co
Premier Furnace Co
Premier Furnace Co
Prentism Wabers Products Co
QUEEN STOVE WORKS
Reliance Mfg Co
RNEEM MFG CO BURFACE COMBUSTION CORP TEMCO INC

Tennessee Enamel Mfg Co Timken Silent Automatic Div Tim-KEN-DETROIT AXLE CO U S Machine Corp.

Utility Appliance Corp Viking Mfg Corp Wayne Home Equipment Ca

#### FURNACES, FORCED AIR

Bard Mfg Co Cleveland Steel Products Co Toridheet Div CONCO ENGINEERING WORKS DIV CONKEY (N D) CO CORGAIRE HEATER CORP Evans Products Co Henderson Furnace & Mfg Co Homer Furnace & Foundry Corp nternational Heater Co NTERNATIONAL OIL BURNER CO Olsen (C A) Mig Co RICHMOND RADIATOR CO Rybolt Heater Co Utility Appliance Corp.

#### FURNACES, GAS FIRED

Airtemp Div Chrysler Corp American Foundry & Furnace Co American Gas Machine Co American Rabiator & Standard Sant-Tary Cosp IT MIR CONTACT DIV AFFILIATED GAS EQUIPMENT INC

Equipment inc century Engineering Corp Clarton & Lambert Mfg Co Clereland Steel Freducts Co Toridheet Dir CALEMAN EO INC CONCO ENGINEERING WORKS DIV CONKEY

CONCO ENGINEERING WORKS DIV CONKEY
(N D): GO
CONGAIRE HEATER CORP
DELCO APPLIANCE DIVISION GENERAL
MOTORS CORP
DOUGLIER REFE Furname Co
House Corp.
HE CORP.

NTERNATIONAL BIL BURNER CO International Oil Burner Co
Ko-T-AP Inc
Ko-T-AP Inc
Ko-T-AP Inc
Ko-T-AP Inc
MAIESTIC CO
MAIESTIC CO
MUELLER (1, 1) FURNACE CO
MUELLER (1, 1) FURNACE CO
MOREL REAT DIV BORG-WARNER CORP
MORBANA PRODUCTS CO

Pioneer Co QUEEN STOVE WORKS RHEEM WFG CO Silent Sloux Oil Burner Corp Steel City Furnace Co SURFACE COMBUSTION CORP

#### Wayne Home Equipment Co WILLIAMSON HEATER CO FURNACES, OIL FIRED

Aeroil Products Inc American Foundry & Furnace Co American Gas Machine Co American Rabiator & Standard Sani-Tany Conp

Armstrong Furnace Co Bard Mfg Co Century Armstrong Furnace Co
Bard Mig Co
Contony Engineering Corp
Contony Engineering Corp
Color Description
For Color Color
For Color Color
For Color
For

Hart of Burder Div Avery Farm Machi Jell Company Henry Furnace Co Homer Furnace & Foundry Corp International Heater Co INTERNATIONAL OIL BURNER CO Kresky Mfg Co KRESNO STAMM MFG CO

LITTLE (H. C) Burner Co MAJESTIC CO MORRISON STEEL PRODUCTS INC. MUELLER (L. J) FURNACE CO National Airoil Burner Co NORGE HEAT DIV BONG-WARNER CORP Northwest Metal Products I Perfection Stove Co Petroleum Heat & Power Co

Petroleum Brat & Fower Prioner Co. Reliance Mfg Co. Reliance Mfg Co. Reliance Mfg Ed. Thatcher Furnace Co. Waterman-Waterbury Co. Warne Home Equipment Co. York-Shipley Inc.

#### FURNACES, PLUMBERS' & TINNERS

Aeroli Freducts Co Inc Anchor Div Stratton & Terstegge Co Inc Berns (9tb) Co Inc Cedarberg Mfg Co Hauck Mfg Co Wall (P) Mfg Co

#### FURNACE & STOVE LINING. DITZAIG

ARMSTRONG CORK CO BUILDING MATE-Fireline Stove & Furnace Lining Co Pecera Paint Co Rutland Fire Clay Co Williams Stove Lining Co

#### FURNACES, SUSPENDED

Con Mig Co Gilbert & Barter Mig Co Jackson & Church MUELLER (L.) FURNACE CO NORGE HEAT DIV BORG-WARNER CORP NORMAR PRODUCTS CO Protection Ricor Ca

#### FURNACES, WALL

Empire Stove Co Kresky Mfg Co Northwest Metal Products Inc Royal Heaters Inc TEMCO INC U S Machine Corp.

#### FURNITURE, BUILT-IN

SIANCO MFC CO Ideal Co Morgan Co

#### FURNITURE, OUTDOOR

FOUNDITURE, OUTD
Adelphian Mill
Adipundach Log Cabin Co
Ames Barris Neville Co
Ames Barris Neville Co
Appleton Toy & Furniture Co
Bandy & Yesman Inc
Bites-Coleman Lumber Co
Burting Glider Co
Davis & Siehl Co
Durham Mig Corp havin a breat corporate with the corporate was Mfg Corporate with the corporate wood Works and Medal Folding Furniture Co Golden Metal Folding Furnitude Golden Mfg Co Graham (Thomas) & Co Inc Habitant Shops Inc Herwood-Wakefold Co Herwood-Wakefold Co Hines (Edward) Lumber Co Kraus (Walter S) to lebinant Co America Mahouey Chair Co Michigan Wire Goods Co Morray (John) Co Migray (John) Co Auppaner Lumber & Mig Co Noblitt-Sparia Industries Inc Oother Foresty Products Inc Old Hickory Furniture Co Paris Mig Co Rastetter (Louis) & Sona Baute Furniture Co Inc. ris Mrg ve untetter (Louis) & Sons untetter (Louis) & Sons unte Heischer Furniture Co-beborgan Chair Co-tewart Iron Works Co Inci wett (A L) Iron Works Pure Lember & Son Co-ling Sunshade Co-lillity Cabinet Co lemann (Ernest) Iron Works olfe (Harry M) oodenware Products Corp

#### FUSE BOXES, ELECTRIC SERVICE

SERVICE

Adam (Frank) Electric Co
All-Steel Equipment Co Inc
Arrow Hart & Hageman Elec Co
Cole Electric Products Div Frederal Electric
Fraderal Son Co
Electrical Engineers Equipment Co
Federal Electric Products Co
CEMERAL ELECTRIC CO COMBATION
MATERIALS DEF
Material Son Coleman Coleman
Material Son Col urdack (Wm) frie Proda Ca

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### FUSES, ELECTRIC, ALL TYPES

Allen (W D) Mfg Co
Bryant Electric Co
Bryant Electric Co
Bussmann Mfg Co
Chase-Blaumut Co
Commercial Enclosed Puse Co
Eagle Electric Mfg Co Inc
Economy Fuse & Mfg Co
GENERAL ELECTRIC CO CONSTRUCTION
MATERIALS SETY MATERIALS BEPT
Jefferson Electric Co
Kirkman Engineering Corp
Metropolitan Electric Mfg Co
Norma Electric Mfg Co
Pennsylvania Illuminating Cor
Boyal Electric Co Inc
Star Fune Co Inc
Trico Fune Mfg Co
Union Insulating Co nating Corp

#### **▶** GARBAGE DISPOSERS

AMERICAN CENTRAL DIV AVCD MFG COMP ADDER SOLATE COP PORTER THOSE OF THE MERCHANDISE DEPT GIVEN MFG CO HOTPHINT INC. MULLINS WFG CORP National Rubber Machi Valley Welding & Boiler Co WESTINGHOUSE ELECTRIC CORP WESTINGHOUSE ELECTRIC CORP Corp

#### GAS BOTTLED

American Liquid Gas Corp Blueflame Corp Carbide & Carbon Chemicals Div Union Car-bide & Carbon Corp Delta Tank Mig Co Inc Sarma On to Natrogas Inc Imaha Blaugas Co Phillips Petroleum Co Profame Corp
Profame Corp
Profame Corp
CARBOD CORP
Shell Oil Co Inc
Skeigas Dir Shelly Oil Co
Standard Oil Co
Universal Bottle Gas Co

#### GASKETS, SEWER PIPE

American Vitrified Products Co Evans Pipe Co.
10 HMS-MANVILLE CORP.
MATIONAL CLAY PIPE MFRS INC.
Robinson Clay Product. Co.
Univernal Concrete Pipe Co. Inc.
Univernal Newer Pipe Corp.
Zurn (J A) Mfg Co.

#### GATES, FARM

AMERICAN STEEL & WIRE CO CECO STEEL PRODUCTS CORP Coburn Mig Co Coburn Mig Co Colorado Fuel & Iron Corp Colorado Pará a Iron Corp Continental Risel Corp Cyclone Fence Dir American Steel & Wire Co Bane Products Ince Franklin Doutpment Co General Implement Corp Hitchs Gate Co Illinois Wire & Mig Co Indians Reel & Wire Co James Mig Co Johnson Industries Inc REYSTONE STEEL & WIRE CO Mid-States Steel & Wire Co NICHOLS WIRE & ALUMINUM CO Northwestern Steel & Wire Co PITTSBURGH STEEL PRODUCTS CO Purifor Products ('o REPUBLIC STEEL CORP ROWE MFG CO Standard Mfg Co TENNESSEE COAL INON & RAILBOAD CO Vaccinol Products Corp Wickwire Spencer Stool Die Colorado Fuel & Iron Corp

#### FATES, FOLDING

AMERICAN STEEL & WIRE CO Cyclone Fence Div American Steel & Wire Co

#### F GATES, WROUGHT IRON

Anchor Post Fence Div Anchor Post Proc ting
Badger Wire & Iron Works Inc
CINCINNATI 180N FENCE CO 1NC
COFFMAN (8 S) CO 1NC
Cyclone Fence Div American Steel & Wire Co Cyclone Pence Div Amovican Non-Edwards Mfg Co GENERAL BRONZE CORP KEYSTONE STEEL & WINE CO Locke Mfg Co Stewart Iron Works Co Inc

#### GAUGES, CRAFTSMAN

Atkins (E C) & Co

CONSOLIDATED MACHINERY & SUPPLY | GLASS, PLATE, HEAT

CONSOLIDATED MACHINE
CO LTD
DISSTON (HENRY) & SONS INC
Laftin Rule Co
Millers Falls Co
Starrett (L S) Co
Tannewitz Works

### GAUGES, DOOR BUTT

#### GAUGES, MOISTURE

American Instrument to Inc Bradley (L. R) & Co Colloid Equipment to Inc Delmhorst Instrument to Hart Moisture Gauges Inc Kaydel Moisture Gauges Measurements Corp Moisture Revisitor Co Moisture Register Co Moore Dry Kiln Co Tagliabue (C J) Mfg Co Taylor Instrument Cos ylor Instrument Cos eston Electrical Instrument Corp

#### GAUGES, SAW

Atkins (E C) & Sun DISSTON (HENNY) & SONS Sandvik Saw & Tool Corp SIMONDS SAW & STEEL CO Terrill (D D) Saw Co

#### GIRDERS, WOOD

LONG-BELL LUMBER CO RILCO LAMINATED PRODUCTS CO Unit Structures Inc. WEYERRAEUSER SALES CO.

#### GLASS, ARCHITECTURAL & ORNAMENTAL

AMERICAN STRUCTURAL PRODUCTS CO IBBEY-OWENS-FORD GLASS CO Pennsylvania Wire Glass Co PITTSBURGH PLATE GLASS CO RESOLITE CORP Boyal Glass Works Corp Safetee Glass Co

#### U S PLYWOOD CORP GLASS BLOCK

Shower Door Co of America TECHNICAL GLASS CO INC

AMERICAN STRUCTURAL PRODUCTS CO INSULUX PRODUCTS DIV OWENS-ILLINDIS
GLASS CO Lasting Products Co PITTSBURGH CORNING CORP DIV PITTS-BURGH PLATE GLASS CO

#### GLASS, COLORED

LIBBEY-OWENS-FORD GLASS CO PITTSBURGH PLATE GLASS CO

#### GLASS, CORRUGATED WIRE Pennsylvania Wire Glass Co.

#### GLASS CUTTER'S RULES

Lufkin Rule Co PITTSBURGH PLATE GLASS CO

#### GLASS CUTTING MACHINES

CUMMINS PORTABLE TOOLS DIV CUM-MINS-CHICAGO CORP PITTSBURGH PLATE GLASS CO RED DEVIL TOOLS

#### **GLASS DOUBLE PANE**

LIBBEY-OWENS FORD GLASS CO PITTSBURGH PLATE GLASS CO

#### GLASS HOLDER. **AUTOMATIC MEASURING**

Heller (W C) & Co PITTSBURGH PLATE GLASS CO RED DEVIL TOOLS

#### GLASS, PLATE

(Semon) & Co Franklin Glass Corp Glaziers' Tool Mfg Co Hagemann Cos Inc LIBBEY-OWENS-FORD GLASS CO pi Glam Co Mirror Works PITTSBURGH PLATE GLASS CO

### ABSORBING

LIBBEY-BWENS-FORD GLASS CO PITTSBURGH PLATE GLASS CO

#### **▶** GLASS, PLATE, INSULATING LIBBEY-OWENS-FORD GLASS CO PITTSBURGH PLATE GLASS CO

#### GLASS SETTINGS, STRUCTURAL

Brasco Mfg Co PITTSBURGH PLATE GLASS CO

### GLASS, STRUCTURAL

Bache (Semon) & Co SLUE RIDGE DIV LIBSY-OWENS FORD GLASS CO Brasco Mfg Co Conroy-Prough Glass Co Franklin Glass Corp ABBEY-OWENS-FORD GLASS CO PITTSBURGH PLATE GLASS CO Royal Glass Works Corp

#### **▶** GLASS SUBSTITUTE

Ace Window Screen Ce of America Allen Brothers Inc. Arvey Corp. Celanese Corp. of America Plastics Dir Clark Wire & Supply Co Du Pont (E I) de Nemours & Co Glassweave Mfg Co Henseltel (C B) Mfg Co RESOLITE CORP Sol-O-Lite Mfg Turner Brothers Warp Brothers

#### GLASS, WINDOW

American Window Glass Co Bache (Semon) & Co Control-Prough Glass Co Dearborn Glass Co Dearborn Glass Co Fourco Glass Co Hagemann Cos Inc Harding Glass Co LUBET-SWENS-FORD GLASS CB Nutre Cox Los Nurre Cos Inc PITTSBURGH PLATE GLASS CO Rock Island Millwork Co Royal Glass Works Corp

#### ▶ GLASS, WINDOW, WIRE

Bache (Semon) & Co Blue Ridge Glass Corp Clark-Babhitt Industries Inc Conroy-Prough Glass Co Dearborn Glass Co Hagemann Cos Inc Harding Glass Co Hoosier Sash & Door Co Ioosier Sash & Door Co PITTSBURGH PLATE GLASS CO

#### GLAZIERS' POINTS

Barrett (W L) Co Black Panther Tool Co Fletcher-Terry Co Glaziers' Tool Mfg Co Holland Mfg Co MARKWELL MFG CO INC Maze (W H) Co MAZE (W H) Co National Sheet Metal Co PITYSBURGH PLATE GLASS CB RED DEVIL TOOLS York Tack & Nail Works

#### GLAZING COMPOUNDS

Abesto Mfg Corp Armstrong Co Biddle Co Briggs-Maroney Co Inc CALBAR PAINT & VARNISH CO Christy Co Inc
Dad & Lad Co
Devoe & Raynolds Co Inc
Dicks-Pontius Co
Donley Brothers
Elliott Paint & Varnish Co
Fort Pitt Chemical Co
Gibson-Homans Co Goodrich (B F) Co Harris Inc Horn (A C) Co Keystone Aard Horn (A C) Co Keystone Asphalt Products Co King (E F) & Co Inc Landen Putty Works Lasting Products Co

Lowe Brothers
MACKLANBURG-DUNCAN CS
MAr-Kay Mfg Co
McGuffle (W W) & Co
Minnerota Mining & Mfg Co
Mortell (J W) Co Parker Ira & Sons Co Percora Paint Co Inc PITTSBURGH PLATE GLASS CB lastic Producta Co resstite Engineering Co Sonneborn (L) Sons Inc esstite inneborn (L) beelcote Mfg Co allivan Co Industries Inc Trames Industries Inc Tremeo Mfg Co Truscon Laborateries Div Desce & Raynolds Inc United Gilsonite Laboratories

#### GLAZING, TRANSPARENT PLASTIC

Arrey Corp Celanese Corp of America Plantics Div Rohm & Haas Co Sol-O-Lite Mfg Co Warp Brothers

#### GLOVES, INDUSTRIAL

Advance Glove Mfg Co American Optical Co Safety Div 

#### GRINDING COMPOUNDS

Clover Mfg Co Hanchett Mfg Co Oakite Products Inc Wayne Chemical Products Co Zip Abrasive Co

#### GLUE, ANIMAL

rmour & Co ommercial Paste Co onsumers Glue Co rescent Products Co Crescent Products Co Franklin Glue Co Fuller (H B) Co Fuller (H B) Co Hewitt (C B) & Brothers Inc Keystems Glue Co Inc Madison Glue Cop Monite Waterproof Glue Co Pasiley Products Inc Perkins Glue Co Standard Faste & Glue Co Tyman Industries Inc Webb Products Co

#### GLUE, ANIMAL, DRY

Armour Glue Works
Consumers Glue Co
Cudaby Packing Co
Keystone Glue Co
LePage's Inc
Nicholson & Co
Standard Paste & Glue Co Inc
Tamms Industries Inc

#### GLUE, ANIMAL HIDE, LIQUID

#### GLUE, CASEIN

Actna Plywood & Veneet Co American Cyanamid Co Rorden Co Chemical Div Consumers Glue Co Davis Plywood Corp Franklin Glue Co Hayes Adhesives Co Hewitt (C B) & Brothers Inc Lacton Glue Mfg Co Lacton Glue Mfg Co LePrage's INE WENGEL CO INC Monite Waterproof Glue Co Monsanto Chemical Co National Caseln Sales Paisley Products Inc Perkins Glue Co Stay-Tite Products Co Tamms Industries Inc U S PLYWOOD CORP

#### GLUE, COLD WATER

Actns Plywood & Veneer Armour & Co Fertilizer Works Div

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Borden Co Chemical Div Consumers Gine Co
Crescent Products Co
Franklin Gine Co
Franklin Gine Co
Fuller (H B) Co
Hewitt (C B) & Brothers Inc
Lacton Gine Mfg Co Lacton Gine Mfg Co LePage's Inc MENGEL COMPANY INC Monite Waterproof Gine Co Monsanto Chemical Co National Casein Sales Paisley Products, Inc Perkins Gine Co 800DIS PLYWOOD CORP Tamms Industries Inc Thornton (L M) Mrg Co Inc

#### **▶** GLUE, FISH

Commercial Paste Co Consumers Glue Co Crescent Products Co Crescent Products
Fix-All Products
Fuller (H B) Co
Hewitt (C B) & Brothers Inc
Lacton Glue Mfg Co
Leftage's Inc
National Adhesives Div Nat Leckage : Constitution of the Constitution of

#### GLUE, LIQUID

Borden Co Chemical Div Carters Ink Co Franklin Glue Co International Glue Co Keystone Glue Co LePage's Inc National Adhesives Div National Starch PITTSBURGH PLATE GLASS CO ROSCET MIGLEGE & Glue Co Rogers Isinglass & Glue Co Standard Paste & Glue Co Inc Testor Chemical Co U S PLYWOOD CORP

#### GLUE, RESIN

Actan Plymod & Veneer Co American Cyanamid Co Borden Co Chemical Div Catalin Curp of America Dulyon (E. I.) In Nemours & Co Inc. Franklin Glue Co Franklin Glue Co Fluier (H B) Co Hayers Adhesives Co Heysix (C. B) & Brothers Inc. LePage's Inc MENGEL CO INC Milwaukee Plywood Co MIRACLE ADMESIVES CORP Monite Waterproof Glue Co Monsanto Chemical Co National Casein Sales Paiglot Products Inc. National Casein Saine Paisley Products Inc Perkins Glue Co Resinous Products & Chemical Co Inc 800015 PLYW000 CORP Short & Hast Co Glue Co Inc U S MERGEL PLYW0005 NGC U S PLYW000 CORP Wellman Products Co

#### **▶** GLUE, WATERPROOF

Actua Plywood & Veneer Co American Cyanasiid Vo Borden Co Chemical Div Commerce Glue Co Dulyon (E. I. De Nemeurs & Co Inc Franklin Glue Co Hewitt (C. B) & Brothers Inc LeFagr's Inc MEMBEL CO HERE & Mr. Co. Minnesota Mining & Mfg Co MIRACLE ADMESIVE CORP Manite Waterproff Cline to
Monisante Chemical Co.
National Caselin Sales
Nicholson & Co.
Paisley Products Inc
Perkins Glue Co.
Place Div Paisley Products Inc
Place Div Paisley Commission Co.
Resinous Products Chemical Co. Inc
Book B. Base Co. Co. Co.
Resinous Products Inc Rohm & Hass Co Standard Paste & Glue Co Inc U S MENGEL PLYWOODS INC

#### GRATES, BOILER

Adams Company Cunningham Machinery Corp Industrial Iron Works Marion Machine Foundry & Supply Co ST PAUL CORRUGATING CO

#### GRATES CERAMIC, FIREPLACE

Appleman Art Glass Works Conco Building Products Gem Clay Forming Co

National Tile & Mfg Co Ohio Valley Clay Co

#### GRATES, VENTILATERS KEWANEE MFG CO

#### **GRATINGS**

AIR CONTROL PRODUCTS INC Allen Steel Products
Chattanooga Implement & Mfg Co
Donley Brothers Co Hendrick Mfg Co Industrial Iron Works locke Mfg Co logan Co Marion Machine Foundry & Supply Co Murray (D J) Mfg Co ST PAUL CORRUGATING CO TRUSCON STEEL CO S Gypsum Co Vestern Foundry Co Vheeling Corrugating Co Jurn (3 A) Mfg Co

GRATINGS, AREAWALL ARTCRAFT ORNAMENTAL INON CO Belson Mfg Co CINCINNATI IRON FENCE CO INC

Donley Brothers Co Harris Inc Industrial Iron Works MAJESTIC CO Smith (FP) Wire & Iron Wo ST PAUL CORRUGATING CO SUPERIOR FIREPLACE CO Swett Iron Works

GRILLES, FIREPLACE

BENNETT-IRELAND INC Brewer-Titchener Corp Donley Brothers Co Industrial Iron Works KEWANEE MFG CO MAJESTIC CO Master Metal Products Co Meyers (Fred) Mfg Co Price Fireplace Co Silent Glow Oil Burner Corp Southern Barbeque-Grill Co SUPERIOR FIREPLACE CO U S Register Co

GRILLES, METAL

ARTCRAFT GRNAMENTAL IRON CO Belson If Co CINCLINATI INDN FENCE CO INC Colorado Fuel & Iron Corp Cornell Rolling Door Works Decatur Iron & Steel Co Donley Bruthers Co Hart & Cooley Mfg Co HEATILATOR INC Hendrick Mfg Co Industrial Iron Works Krauser-Boyd Ine Lockjoint Wood Products Co Locky Co. Locky 

#### GRILLES, OUTDOOR COOKING

BENNETT-IRELAND INC CINCINNATI IRON FENCE CO INC Donley Bros Co
Homer Furnace & Foundry Corp
MAIESTIC CO
Master Metal Products Co
Price Fireplace Co
Silent Glow Oil Burner Corp

GRILLES, RADIATOR

AMERICAN RADIATOR & STANDARD SANI-TARY CORP TARY UNPA Anter Register Co Braun (J G) Co Columbia Metal Box Co Garden City Plating & Mfg Co Meyers (Fred L) Mfg Co Parher (8) Hardware Mfg Corp U S Register Co Mfg Corp U'S Register Spencer Steel Dir Colorado Fuel & Tren Carm

GRILLES, SCREEN DOOR

AIR CONTROL PRODUCTS INC Allen Steel Products
ARTCRAFT BRNAMENTAL IRON CO (W J) & Co eready Co wkins Iron Co

Hutchinson Co Kentucky Metal Products Co Kentucky Metal Products On Logan Co Mules-Districts Co MacRada Co Marcha Co MacRada Co Marcha Co Material Guard Products Inc Ornamental Metal Works Parker (8) Hardware Mig Co Protex Weatherstrip Mig Co Robbins Mig Co Imn Co Samoos (Wm J. 1970) Wire & Iron Works Southern Wire & Iron Works Southern Wire & Iron Works

GRILLES, STEEL, ROLLING Cornell Rolling Door Work

GRILLES, WINDOW cluminum Window Corp hamberlin Co of America Inc yclone Fence Div American Steel & Wire Co wale Equipment Mfg Co ogan Co

Logan Co METAL CRAFTERS (Fred L) Mfg Co Meyers (Fred L) Mfg National Guard Produc Newman Brothers Inc Robbins Mfg Co

GRINDERS, BAND, WHEEL

Bridgeport Safety Emery Wheel Co Filer & Stowell Co

GRINDERS, BENCH & FLOOR

BLACK & DECKER MFG CO BRADFORD MACHINE TOOL CO BRADFORD MACHINE TOOL CO Bridgeport Safety Emery Wheel Co Champion Blower & Force Co Cincinnati Electrical Tool Div LeBiond (R K) Machine Tool Co Clizhe Rotchers Mig Co Diehl Mig Co Div Electrical Div Singer Mig Co Inchett Mfg Co NDEPENDENT PNEUMATIC TOOL CO Luppmann Engineering Works Luther Grinder & Tool Co MALL 7001 CO Millers Falls Co MILWAUKEE ELECTRIC TOOL CORP PORTER-CABLE MACHINE CO ROCKWELL MFG CO DELTA POWER TOOL SKILSAW INC Speed Way Mig Co
Standard Electrical Tool Co
Standard Electrical Tool Co
WORKS
US Electrical Tool Co
Vonneum Monider Corp
WALKER-TURNER DIV MEARNEY TRECKER
CORP in Abrasive Mfg Co

GRINDERS, CUTTER HEAD

C K L Machinery Co Dependable Machine Co Hermance Machine Co Newman Machine Co Shimer (Samuel J) & Soos Inc Stetson-Ross Machinery Co Woods (S A) Machine Co

#### **▶** GRINDERS, ELECTRIC PORTABLE

CK & DECREE.

Jago Preumatic Tool tocage Wheel & Mfg Co

and Equipment Co Inc

and Equipment Co Inc

Electrical Div Singer Mfg Co BLACK & DECKER MFG CO Diehl Mfg Co Elect DREMEL MFG CO Duro Metal Products Co INDEPENDENT PREUMATIC TOOL CO Luther Grinder & Tool Co Mall Tool Co Millers Falls Millers Falls Co MILWAUKEE ELECTRIC TOOL CORP Newman Machine Co PORTER-CABLE MACHINE CO Portable Electric Speedway Mfg Co STANLEY WORKS SYNTHEN CO S Electric Tools Co

#### **▶** GROOVERS

tkins (E C) & Co Ekstrom Carlson & Co Huther Brothers Saw Mfg Co Inc MACKLANBURG-DUNCAN CO Mayes Brothers Tool Mfg Co Wilson Saw Div Media Machine Works Inc. GUARDS, AREAWALL

AIR CONTROL PRODUCTS BRAINARD STEEL CO ST PAUL CORRUGATING CO Sharon Steel Co UNITED STEEL FABRICATORS

**GUARDS, ROOF & SNOW** CHASE BRASS & COPPER CO INLAND STEEL PRODUCTS CO

GUARDS, SAW

(E C) & Co Beach Mfg Co Fay (J A) & Egan Co Huther Brothers Saw Mfg Co Inc Oliver Machinery Co ROCKWELL MFG CO DELTA POWER TOOL Yates-American Machine Co

GUARDS, WHEEL

Adams Co
Donley Brothers Co
Fiske (J W) Iron Works
Hawkins Iron Co Inc
Industrial Iron Works
International Steel Co MAJESTIC CO Mesker Brothers Swett (A L) Iron Works Western Foundry Co Wheeling Corrugating Co

GUARDS, WINDOW

Adams Co
AIR CONTROL PRODUCTS INC LEIGH
BUILDING PRODUCTS DIV
ARTCRAFT ORNAMENTAL INON CO
Badger Wire & Iron Works Inc Badger Wire Clay Equipm Cyclone Fene Edwards Mfg Badger Wire & Iron Works Inc Clay Equipment Corp Cyclone Fence Dis American Steel & Wire Co Edwards Mig. Of Control of Con-Grand Rapids Wire Products Co Hawkins Iron Co Hopewell Mig Co Kentucky Metal Products Co LOCKWOOD HARDWARE MFG CO Logan Co MACKLANBUNG-DUNCAN CO Mesker Brothers
Mesker (Brothers Li Birel Corp.
Mesker (Fred Li) Mig Co
Mesters (Fred Li) Mig Co
MATIGNAL BRASS CO
NATIONAL BRASS CO
NATIONAL GUARD PROMOTE
NOS MIS CO
RUSSELL & ERWIN DIV AMERICAN HARDWARE CORP. WARE CAAP Standard Bronze Co Smith (F P) Wire & Iron Works Southern Wire & Iron Works Standard Bronze Co Starline Inc Stewart Iron Works Co Inc Wheeling Corrugating Co

GUMMERS, SAW

Atkins (E C) & Co Champion Blower & Forge Co Chicago Wheel & Mig Co FOLEY MFG CO General Hardware Corp Hanchett Mfg Co Luther Grinder & Tool Co Macklin Co Macklin Co Mid-West Abrasive Co Norton Co Rogers (Samuel C) & Co Wisconsin Abrasive Mfg Co

#### **▶** GUNS, CAULKING & GLAZING

Mfg Co Abesto Big to

Kiddle Co

CALBAR PAINT & VARNISK CO

CALBAR PAINT & CALB

Electric Starpii Co

Ford Roofing Products Co

Fort Plit Chemical Co

Glisson-Homans Co

Glisson-Homans Co

Glisson-Homans Co

Glisson-Hom Mir Co

Mir Co Glaziers' Tool Mfg Co Horn (A C) Co Inc MACKLANBURG-DUNCAN CO PITTSBURGH PLATE GLASS CO Plastic Products Co Protex Weatherstrip Mfg Co Bobbins Mfg Co Seal Rite Caulking Co Steelcote Mig Co Stewart-Warner Corp.

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Tamms Industries Inc Tremeo Mfg Co Vital Products Mfg Co Webster (W F) Coment Co Western Reserve Mfg Co

#### GUNS, PNEUMATIC CONCRETE APPLICATION

CONSTRUCTION MACHINERY SALES CO

GUTTERS, METAL

Anacona Saica Co
Armon Steel Corp
Badger Corrugating Co
Berger Mfg Div Republic Steel Corp.
CECO SYEEL PRODUCTS CORP.
CECO SYEEL PRODUCTS CORP.
CHASE BRASS & COPPER CO
Cincinnati Sheet Metal & Reofing Co
Edwards Mfg Co
Harrison Steel Cabinet Co HAPMON STEEL CO-INLAND STEEL PRODUCTS CO-Klauer Mfg Co-Krauser-Boyd Inc LaCrosse Steel Roofing & Corrug cooling & Corrugating Co LaCrome Nicel Roofing & Corrugating Co Lyou Conkin & Co Inc Mid-States Steel & Wire Co New Holland Metals Co NICHOLS WIRE & ALUMINUM CO Northwest Metal Products Inc Penn Supply & Metal Corp Revers Steel & Mig Co Rever Copyer & Brass Inc MEYMOLOS WIRE ALLO PRODUCTS

ST PAUL CORRUGATING CO Wheeling Corrugating Co Willis Steel Corp

GUTTERS, WOOD

Aloha Lumber Co
American Lumber & Treating Co
Arrow Tank Co Inc
Dolber & Carson Lumber Co
Duran Fir Gutter Co Inc
Forder-Crossett Lumber Co
Hammond Lumber Co
Holmes-Eureka Lumber Co
Holmes-Eureka Lumber Co
Lower Streats Long Fir Gutter Co Mutual Fir Column Co Silbernagel (George J) & Sons Co Union Lumber Co Union Lumber Ca Washington Mfg Co Willamette Valley Lumber Co WEYERHAEUSER SALES CO

**► GYPSUM** NATIONAL GYPSUM CO

HAMMERS, HAND, ALL TYPES

Billings & Spencer Co Burgess Fastening Co Capewell Mfg Co mapion-be Arment Tool Co beney (Henry) Hammer Corp twing Mfg Co irmount Tool & F Estwing Mfg Co
Pairmount Tool & Forging Co
FASTENER CORP
GOLDBLAYT YOOL CO
Graham (John H) & Co Graham (John H) & Heller Brothers Co Hotchkiss (E H) Co Hubbard & Co Lectonia Tool Co Marion Tool Corp MARKWELL MFG CO INC Maybew Steel Products Inc Mephisto Tool Co Inc Ox-Wall Tool Co F & C Hand Forged Tool Co Peck Stow & Wilcox Co Phoenix Hardware Mfg Co Phoenix Hardware Mfg Co Phoenix Mfg Co Plumb (Fayette R) Inc Proto Tool Co RED DEVIL TOOLS SELCK (WALTER E) & CO STANLEY WORKS STANLEY TOOLS DIV STANLEY WORKS True Temper Corp Vaughan & Bushnell Mfg Co Vichek Tool Co

HAMMERS, MAGNET PITTSBURGH PLATE GLASS CO

**▶** HAMMERS, PNEUMATIC

SVETERN CH WORTHINGTON PUMP & MACHINERY CORP

#### HAMMERS, PORTABLE ELECTRIC

Allied Tools Inc. Chicago Preumatic Tool Co GOLDBLATT TOOL CO HOMELITE CORP INDEPENDENT PNEUMATIC TOOL CO MALL TOOL CO MILWAUKEE ELECTRIC TOOL CORP SKILWAW INC STANLEY ELECTRIC TOOLS DIV STANLEY STANLEY WORKS SYNTHON CO Van Dorn Electric Tool Co Finetric Tool Corp

### HAMPERS, BUILT-IN

Standard Steel Cabinet Co

#### HANDLES FOR AXE, PICK, SLEDGE, HATCHET

Amos (Charles H) Handle Co Bruner-Ivory Handle Co Buckere Handle Works Co Cheeseborough (Thos E) Chicago Wood & Plastic Products Cooke (R F) Mg Co DISSIBN (NENNY) & SOMS INC DOWN HOUSE DISSIBM (MENNY) & 50%
Dowel House
Exten (K B) & Rons Inc
Gallon Handle & Mig Co
Hartwell Brus
Imperial Handle Mig To
Marion Handle Mills Inc
National Aliminum Co
Other Mills Mig Co
Nother Mills Mig Co
South Bend Dowel & Mig Co
Strock (L W) & Co
Strock (L W) & Co
Strock (L W) & Co
Type Syracuse Allon Metals Corp
Lynon For & Hote Corp
Lynon For & Hote Corp
Lynon For & Hote Co
Lynon For & Hote Co
Lynon Handle Metals Corp
Lynon For & Hote Co
Lynon For & Hote Co
Lynon Handle Metals Corp
Lynon For & Hote Co
Lynon For & Hote Co
Lynon Handle Metals Corp
Lynon For & Hote Co
Lynon For & Hote Co
Lynon Handle Mig Mig Co
Lynon For & Hote Co
Lynon For Reservation For Rese

#### HANGARS, AIRPLANE

Blaw-Knox Div Blaw-Knox Co Butler Mfg Co International Steel Co Mester (George L) Steel Corp RILCO LAMINATED PRODUCTS CO STRAN-STEEL DIV GREAT LAKES STEEL STEELCRAFT MFG CO TIMBER STRUCTURES INC TRUSCON STEEL CO UNITED STEEL FABRICATORS INC

### HANGERS, BATHTUB AMERICAN ADJATOR & STANDARD SAWI-TARY CORP KRHILEK CO LUCKE (WILLIAM B) INC TITORAL MISCO ZURTO JA) MISCO

#### HANGERS, EAVE TROUGH & CONDUCTOR PIPE

Madget Corrugating to
Berger Mg Div Republic Steel Corp
CECO STEEL PRODUCTS CORP
CHASE BRASS & COPPER CO
HOSSON (W C) CO
INLAND STEEL PRODUCTS CO Mid-States Steel & Wire Co New Holland Metals Co Obio Corrugating Co Penn Supply & Metal Corp REVASION WETALS CO SUILDING PROD-UCTS DIV United States Steel Co Wheeling Corrugating Co

#### HANGERS, INSULATION

#### HANGERS, JOIST & LUMBER

Adams Co
Allen Steel Products Co
Chereland Steel Specialty Co Ins
Consultated Iron Steel Mrg Co
Copres Steel & Wire Co
COPC STEEL & RECINERATING CO
Deather Iron & Steel Co
Dunley Brothers Co
Dupley Brothers Co
Dupley Bro Hosking Paper & Supply Ideal Hanger Co Lanebro Mfg Co Soule Steel Ca

#### HANGERS, METAL LATH

Berger Mfg Div Republic Steel BOSTWICK STEEL LATH CO CECO STEEL PRODUCTS CORP Goldsmith Metal Lath Co. TRUSCON STEEL CO

#### HANGERS, PIPE & CONDUIT

Carpenter & Patternon Inc Diamond Expansion Bolt Co General Fittings Co Hubbard & Co Illinois Malleable Iron Co linois Malicable Iron Co dalleable Iron Fittings Co PAINE COMPANY apping Co Victor Specialties
Voungstown Mfg Inc.

#### HARDBOARD, ASPHALT Meadows (W E) Inc

#### HARDBOARD, COMPOSITION & FIBROUS, DECORATIVE

Actns Plywood & Veneer Co ARMSTRONG CORK CO BUILDING MATE-RIALS DIV CELOTEX CORP CHAPCO SAICS CURTIS COMPANIES INC DANT & RUSSELL Fir-Tex Insulating Board Co FLINTROTE CO Forest Fiber Products Co FORMER PRODUCTS CON MONASOTE CO MONASOTE CO MONASOTE CO MONASOTE CO PAPER CO DIV MINNESOTA & ONTARIO PAPER CO DIAMESTO COPP.

KEASBEY & MATTISON CO LONG BELL LUMBER CO Lustrewood Process
MASONITE CORP Meadows to Shafer Inc Missman & Shafer Inc MATIONAL CYPSUM CO OREGON LUMBER CO Traille Veneer & Plywood Corp PROTECTIVE PAPERS INC. RODDIS PLYWOOD CORP SIMPSON LOGGING CO U S Gypsum Co U S PLYWOOD ERRP WOODALL INDUSTRIES INC

### HARDBOARD, EMBOSSED

#### HARDBOARD, PACKAGED. SMALL SIZES

MASONITE CORP

#### HARDWARE, AWNING

Astring Co Awning Hardware Co CORBIN (P & F) DIV AMERICAN HARD-WARE CHUP Fanner Mig Co Goss (J C) Co PITTSBURGH PLATE GLASS CO Reading Hardware Corp SARGENT & CO

#### HARDWARE, AWNING WIN-DOM

CORBIN (P & F) DIV AMERICAN HARD-WARE COEP GATE CITY SASH & DOOR CD LATSON (Chas O) Co LUDMAN CORP Reading Hardware Corp. RUSSELL & ERWIN DIV AMERICAN HARD-WARE CORP. Slaymaker Lock Co STERLING MARDWARE MFG CO Super Vent Co Whitney (Vincent) Co

#### HARDWARE, BARN

ALLIVI-POUT NEC.
COMBIN (P & F) DIV AMERICAN HARDWARE CORP
HARD WARE CORP
HAGEN (I & 50NS NINGE MFG CO
HAGEN (II O) MTg Co
James MTg Co
Lawrone From Louden Machinery Co McKinney Mfg Co

Myers (F E) & Brother Co NATIONAL NFG CO RICHARDS-WILCOX NFG CO STANLEY WORKS MAGNER MFG CO

#### HARDWARE, BOAT DOCK

Central Machine Works Co Fiwale Equipment Co Slaymaker Lock Co

#### HARDWARE, CABINET

Acorn Mfg Co ADAMS-RITE MFC CO Ajax Hardware Mfc Co American Brass Goods Co AMERICAN CABINET HANDWARE CORP Barrows Lock Works CASEMENT HARDWARE CO pco Cerp Hinge leveland Lock Works linton Lock Co modidat Cieveland Lock Works
Clinton Lock Gers
Consolidated Iron-Steel Mfg Co
Consolidated Iron-Steel Mfg Co
CORBIN (Co F) DIV AMERICAN HARDCUNTIS COMPANIES ING
Finders Machine Wurfs
Eagle Lock Co
Engineered Freducts Co Statemion Drawer Support Co Strension Drawer Support Co State Equipment Mfg Co RAWIZ MFG Co Jarden City Plating & Mfg Co Jeneral Steel Warehouse Co Ges July Modding Co naco Tool Div Gits Molding torp Grand Rapids Hardware Co GRANT PULLEY & NARDWARE CO GREGG & SON Griffin Mig Co NAGER (C) & SONS NINGE MFG CO Harvard Lock Co Heller (W C) & Co Heller (W.C.) & Co
Hollymade Hardware Mfg Co
Hoal Brass Works Inc
Independent Lock Co
tres (H.B.) Co
Kees (F.D.) Mfg Co
Kees (F.D.) Mfg Co
KWIKSEY LOCKS ING
Lawrence Brothers LAWRENCE BROTHERS
LOCKWOOD HARDWARE MFG CO
MACKLAMBURG-DUNGAN CO
McKinner Mfg Co McKinney Mfg Co Modern Plastics Co NATIONAL BRASS CO NATIONAL LOCK CO NATIONAL LOCK CO NATIONAL MFG CO Noy Mfg Co NOW MFg Co NOWN Lock Co Div Segal Lock & Hard-Norwalk Lock Co Div Segal Lock & Hardorwalk Lock Co Div Segal Le ware Co arker (S) Hardware Mfg Co arker Ltd Peabody Co Inc
Penn Hardware Co
Petito Industries
Phoenix Lock Co
Reading Hardware Corp
Resse Padlock Co Reading Hardware Corp.

RESERLA ERWIN DIV ANERICAN HARBRESERVAN DIV. ANERICAN HARBRESERVAN DIV. ANERICAN HARBRESERVAN DIV. ANERICAN HARBORESERVAN HARBORN MIG CO.

RIAMMARIE ANERICAN DIV. ANERICAN HARBORN MIG CO.

RIAMMARIE ANERICAN DIV. ANERICAN DIV. ANERICAN HARBORN MIG CO.

RIAMMARIE ANERICAN DIV. A Star Metal Products Inc STERLING NARDWARE MFG CO TECHNICAL GLASS CO INC

#### HARDWARE, CASEMENT WINDOW

American Bracu Goods Co AMERICAN CABINET HARDWARE CORP Arrow Lock Corp Barrow Lock Works Bayley (William) Co Casement Hardware C Champion Hardware CHAMPION THE COCHAMPION HANDWAYE CO
CHAMPION HANDWAYE CO
CHAMPION HANDWAYE CAP
CAPT STEEL PRODUCTS INC
CUNTIS COMPANIES INC
FENSITA BUILDING PRODUCTS
FENSITA BUILDING PRODUCTS
FENSITA BUILDING CO
GRANT PULLUY & HANDWAYE CO
GRIMM ME CO
MACER (C) & SOMS MINGE MFG CO
Ideal Brain Works
Independent Lock Co
Kees (F D) Mfg Co
LAWYON BUILDING CO
LAWYON BUILDING MFG CO
LAWYON BUILDING CO
LAWYON BUILDING
LAWYON

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

McKinney Mfg Co HATIONAL BRASS CO Peabody Co Inc Penn Hardware Co Phenix Mfg Co Inc Reading Hardware Corp. RICHARDS-WILLDA MTS

RISSON (100-20 C) Co
RUSSELL & ERWIN DIV AMERICAN HARD-WARE COR
VAGE CARTON LOCK
SAFECHT & CO

SHEDY SPITING Slings CO TANLEY WORKS VALE & TOWNE MFG CO

### HARDWARE, CLOTHES

CLOSET
ACTE MICHAEL Goods Mfg Co
Alax Hardware Mfg Corp
Amerline Ine
Arrow Lock Corp
Addigner Co
Addigner Co
Bonner Society
Bonner Society
Chiago Cuttatin Stretcher Co
Claft d B1 Co
Claft d B1 Co
WARE CORP
Ducan Shaw Corp
Erro Mfg Co
Erro Mfg Co Duncan Shaw Corp Erco Mfg Co FAWSCO MFG DIV FALLS STAMPING & WELDING CO WELDING CO
Fivale Equipment Mfg Co
Finale Equipment Mfg Co
Finale Equipment Mfg Co
Garden City Plating & Mfg Co
Gem Mfg Co
Gem Mfg Co
GETTY (N S) & CO INC
GRANT PULLEY & HARDWARE CO
HAGER (C) & SONS NINGE MFG CO
HAGER (C) & SONS NINGE MFG CO Harloc Products Corp Handy Things Mfg Co Illinois Porcelain Enamel Co Handy Things Mfg Co Hilinois Porcelain Ename Ives (H B) Co Judd (H L) Co Inc K D K Upset Forging Co Ken-Bo-Bil Co Knape & Vogt Mfg Co Kraus (Waiter S) Co Larson (Charles O) Co Lawrence Brothers
LECKWESS HARDWAM MFC CO
Marvel Rack Mfg Co
McKinney Mfg Co
Modern Plastic Co
Modern Plastic Co Moutton Ladder Mfg Co MATIONAL MFG CO MATIONAL MFG CO MATIONAL MFG CO Pather (8) Hardware Mfg Corp Peabody Co RUSSELL & IRWIN DIV AMERICAN HAND-WARE CORP Hager-Barrows Lock Works SARGENT & CO Shelby Spring Hinge Skillman Hardware Co Slaymaker Lock Co outhern Galvanizing Co evenson Mfg Co niversal Steel Equipment Corp imear Sales Co Washington Steel Products HARDWARE, DOOR

Ajax Hardware Mfg Corp AMERICAN SLIDING BOOK HARDWARE COMP Champion Hardware Co CORBIN (P F) DIV AMERICAN HARD-WARE COMP LOCKWOOD HARDWARE MFG CO Penn Hardware Co Sager-Barrows Leck Works SARGENT & CO Skillman Hardware Co Wickwire Spencer Steel Div Colorado Fuel & Iron Corp

### HARDWARE, DOOR ACCES-

Acord Mfg Co ADAMS RITE MFG CO AIR CONTROL PRODUCTS Ajax Hardware Mfg Corp ALLITH-PROUTY INC ALLMETAL WEATHERSTRIP CO American Brass Goods Co American Cabinet Hardware Corp Arrow Lock Corp Barrows Lock Works Bridgeport Chain & Mfg Co Busch (A G) Co Inc Chamberlin Co of America Champion Hardware Co
Chase BRASS & COPPER CO
Cheoler (J) & Bons
Cipco Corp

Clinton Lock Co Colonial Brass Co Columbus Brass Mfg Co CORBIN (P & F) DIV AMERICAN HARD-WARE CREF

WARE CREF
Decorite Inc
Dorbin Metal Strip Mfg Co
Eagle Lock Co
Engineered Froducts Co
Erco Mfg Co
Friske (J W) Iron Works
Fiske LOW Iron Works
Fiske Equipment Mfg Co
FRANTZ MFG CO
General Strel Warehouse Co archouse Co Gensco Tool Div General Steel Warehouse Co Gense Gits Molding Corp Grand Rapids Wire Products Co Grand Specialties Co GRANT PULLEY & HARDWARE CO Griffin Mfg Co WAGER (C) & SONS WINGE CO Harvard Leck Co
Hollymade Hardware Mig Co
Houserant Mig Co
Houserant Mig Co
Johan Brams Works
Jees (H B) Co
Free (H B) Co
Mig Co
Kenticky Metal Products Co
MacKicasburg-Durican Co
MacKicasburg-Durican

MACKLANBUNG-DUNCAN CO Marion Tool Corp McKinner Mfg Co Mesker (George L.) Steel Corp. Milwaukee Stamping Co Modern Plastic Co Monarch Metal Weatherstrip Co NATIONAL BRASS CO NATIONAL BRASS CO National Guard Products
NATIONAL LOCK CO
NATIONAL MFG CO
Newell Mfg Co
Newman Brothers
New Mfg Co Ney mrg Co Northern Industries Inc Norton Door Closer Co Norwalk Lock Co Div Segal Lock & Hardware

NUTURE AND Pacific Plastic & Mfg Co Parker (S) Hardware Mfg Co Parlyn Ltd Peabody Co Ine Penn Hardware Co Peabody Co Inc
Penn Hardware Co
Petko Industries
Phenix Mfg Co Inc
Phoenix Hardware Mfg Co
PITTSBURGH PLATE GLASS CO Reese Padlock Co RICHARDS-WILCOX MFG CO

RICHARDS-WILDEN MFG CO
RICHARDS-WILDEN MFG CO
Robbins Mfg Co
Safe Co
Robbins Co
Robbins Mfg Co
R Sons Mfg Co Southern Wire & Iron Worka Spanjers (A J) Co Starline Inc STERLING NARDWARE MFG CO Superior Accessory Co Superior Plantics Div Commonwealth Plantics

TECHNICAL GLASS CO. Thermal Co Trego Industries Washington Steel Producta Waterloo Sales Co Wellman Products Co Wellmand Mfg Co Woodmark Industries Inc YALE & TOWNE MFG CO Products Inc.

#### HARDWARE, DRAWER, KNOBS & PULLS

ADAMS-RITE MFG CO. Ajax Hardware Mfg Corp AMERICAN CABINET HARDWARE CORP AMERICAN CARINET MARDWARE CORP
Arrow Lock Corp.
Barwer Lock Works
Bendix Mig Co.
Cheeler (J) & Nons Inc.
Chicage Wood & Flustic Products Co.
City Flating & Mig Co.
Colon (B) F Mig Co.
FRANTZ MFG CO.
FRANTZ MFG CO.
Colon (B) Colon (Colon (C

FRANTZ MFE CO General Steel Warehouse Co Gensco Tool Div GRANT PULLEY & HARDWARE CO HAGER (C) & SONS HINGE MFG CO

Barloe Products Corp Hollymade Bardware Mfg Co Hollymode Hardware Mfg Co free (H B) Co Knape & Vogt Mfg Co KWIKSEY LOCKS INC LABORATORY EQUIPMENT CORP-LOCKWOOD MARDWARE MFG CO McKinney Mfg Co McKinney Mfg Co Modern Plantes Co Modern Plastics Co NATIONAL BRASS CO National Hardware Co MATIONAL LOCK CO MATIONAL MFC CO Norwall Lock Co Div Segal Lock & Hardware Co Pacific Plastic & Mfg Co Parier (8) Hardware Mfg Corp

Peabody Co Inc Penn Hardware Co GRAIDE HARDERS COP BROADE HARDERS AND AMERICAN MAND-MANE COMMANDERS AND AMERICAN MAND-MANE COMMANDERS AND AMERICAN MAND-MANE COMMAND AND AMERICAN MAND-CASET-BARROW LOCK WORLD SCHLAGE LOCK CO SCHLAGE LOCK CO Segal Lock & Hardware Co Inc SELCK (WALTER E) & CO Skillman Hardware Co Slapmaker Lock Co Standard Bronse Co STANLEY WORKS Stiles (E.A.) Co Superior Plastic Dir Commonwealth Plastics

TECHNICAL GLASS CO INC U S Glass Co Westwood Mfg Co YALE & TOWNE MFG CO

#### HARDWARE, GARAGE DOOR ALLITH-PROUTY INC

Caider Mfg Co Champion Hardware Co Colorado Fuel & Iron Steel Div Corn Wickwire Spencer Commander Door Inc
CORBIN (P & F) DIV AMERICAN MARD-WARE CORP CRAWFORD DOOR CO Finale Equipment Mrg Co FRANTZ MFG CO General Steel Warehouse Co Inc Genseo Tool pecialties Co (C) & SONS HINGE MFG CO Louden Machinery Co McKinnery Mfg Co MATIGNAL MFG CO Parter (4) Hardware Mfg Corp. Fenn Hardware Co Pienth Mfg Co REYNOLDS METALS CO BUILDING PROCE MATMEND MILESX MFG CB
RICHARDS-WILESX MFG CB
RICHARDS-WILESX MFG CB
WARE CBRF
KESSELL & ERWIN DIV AMERICAN MARDWARE CBRF
K Louis Screw & Bolt Co
Rager-Barrows Lack Works
SARCERT & CB
Sharon Hardware Mfg Co
Sharon Hardware Mfg Co Sharon Hardware Mfg Co Shelby Spring Hinge Co Slaymaker Lock Co STANLEY WORKS GARAGE HARDWARE DEPT STANLEY WORKS Sterling Bolt Co STERLING HARDWARE WEG CO Tarart Co Ltd WAGNER MFG CO

#### HARDWARE, GARAGE, **FOLDING DOOR**

Busch (A G) & Co Inc Clinton Lock Co Colorado Fuel & Iron Corp Wickwire Spencer Steel Div Eastern Malleable Iron Co Eberhard Mfg Co Div
Griffin Mfg Co
HAGER (C) & SONS NINGE MFG CO
LOCKWOOD HARDWARE MFG CO
MACKLANBURG-DUNCAN CO
Ney Mfg Co

Peabody Co Inc RUSSELL & ERWIN DIV AMERICAN HARD-WARE CHEP m Mfg Co.

#### HARDWARE, GARAGE, **UPWARD-ACTING**

ALLITH-PROUTY INC Arrowsmith Tool & Die Co Better-Bitt Door Co Calder Mfg Co Inc Clay Equipment Corn

Colorado Fuel & Iron Cup Wickwire Spencer
Sect Dir
COMPARIES INC
CURTIS COMPARIES INC
Freste Equipment Mig to
Frantz Mig Co
COMPARIES INC
COMPARIES INC
COMPARIES INC
COMPARIES INC
COMPARIES INC
COMPARIES INC
CURTIS COMPARIES INC
CURTIS COMPARIES INC CONTIS COMPANIES INC
FRANTZ MFG CO
FRANTZ MFG CO
GRANT PULLEY & NARDWARE CO
NACER (C) & SONS NINGE MFG CO
LOCKWOOD NARDWARE MFG CO
LOCKWOOD NARDWARE MFG CO NATIONAL MFG CO Phenix Mfg Co BICHARDS-WILCOX MFG CO STANLEY WORKS Starline Inc Tavart Co Ltd Vimear Sales Co WAGNER WFG CO

HARDWARE, LADDER

Ajax Building Bracket Co ALLITH-PROUTY INC Baheock (W W) Co Caster Mold & Machine Co ort Lad Mfg Co Lerson Ladder Co Michigan Ladder Co Newark Ladder & Bracket Co Rich Ladder & Mrg Co STANLEY WORKS

#### HARDWARE, SCREEN & STORM SASH

Amin Mig Co
Air-The Window Stay Co
Aiax Hardware Mig Corp
Aiden Mig Co
AMERICAN CABINET HARDWARE CORP
Arcade Mig Div Bockwell Mig Co
Barber Mig Co Inc
Busch (A G) & Co Inc Arcam mig bly mocked mig C Barber Mig Co Inc CASEMENT MARDWARE CO CASEMENT MARDWARE CO CLICAGO SPITING THE CO Chicago Spring Hinge Co Clinton Lock Co

Clinton Lock Co Connollidated Tun-Store Mfg Co CORBIN (P & F) DIV AMERICAN HARD-WARE CORP. CURTIS COMPANIES INC Dentis (W J) & Co Engineed Products Co Griffin Mfg Co. Griffin Mfg Co
HAGER (C) & SONS HINGE MFG CO
HAGER (C) & SONS HINGE MFG CO
Handy Things Mfg Co
Lical Brass Works
Kant-Rlam Door Check Co
Kees (F D) Mfg Co
King-Chippens Co
King-Chippens Co King-Chippewa Co Knape & Vogt Mfg Co KWIKSET LOCKS INC AWTENCE Brothers ACKLANBURG-DUNCAN CO Norton Boor Closer Co Norwalk Lock Co Div Sogal Lock & Bardware (S) Hardware Mfg Corp

Partie (4) Historiae Mrg Curp
Penn Hardware Co
Petho Industries
Phenix Mrg Co Inc
Pioneer Hardware Co
REYNOLDS METALS CO BUILDING PROD-UCIS DIV RUSSELL & ERWIN DIV AMERICAN HAND-WARE CORP Safe Padlock & Hardware Co Saf-N. Ene Hanger Co Sager-Barrow Lock Works Sharon Hardware Mrg Co Sharon Hardware Mrg Co Stermaker Lock Co STANLEY WORKS STERLING HARDWARE MFG CO TECHNICAL GLASS CO INC

Vimear Sales Co WAGNER MFG CO Wickwire Spencer Steel Div Culorado Fuel & Iron Corp Wright Products Inc VALE & TOWNE MFG CO

#### HARDWARE, SILO & TANK

Arrow Tank Co Inc DeMuth Steel Products Co

#### HARDWARE, SLIDING DOORS

ACHE APPLIANCE MFG CO Accurate Metal Weather Minip Co Inc ADAMS-RITE MFG IS ALLITH-FROUTY INC AMERICAN SLIDING DOOR HARDWARE CORP

CORP
RETURN Lock Works
Calder Mfg Co
Clay Equipment Corp
Clinton Lock Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

CUNTIS COMPANY
Frather Flote EN
FRANTZ MFG EN
GARWHCHEY Flating & MFg Co
GARTHA CLUSTER INC
GARANT PULLEY & MARDWARE CO
MAGER (C) & SONS HINGE MFG CO lames Mfg Co Cospo & Vegt Mfg Co anchro Mfg Co Inc OCKWOOD HARDWARE MFG CO Louden Machinery Co MACKLANBURG-DUNCAN CO MCKENNA (JAY 6) INC Mckinney Mfg Co METAL PREDUCTS CORP NATIONAL MES CO Nu-Way Builders Corp Olson Mfg Co Parker (8) Hardware Mfg Corp Peabody Co Inc Penn Hardware Co Prent Hardware Co Beading Bardware Corp RICHARDS-WILCOX MFG CO RUSSELL & ERWIN DIV AMERICAN HARD-WARE CORP SARCENT & CO. Sharon Hardware Mfg Co STABLEY WORKS Starling Inc STERLING HARDWARE MFG CO U S SLIDING DOOR CORP Vimear Sales Co WAGNER MFG CB Western Products Inc Wickwire Spencer Steel Div Colorado Fuel & Iron Corp

### HARDWARE, VENETIAN

Bead Chain Mfg Co Bills Venetian Biled Co Carey-McFall Co Fiwale Equipment Mfg Co FIVE EQUIPMENT ATTY CO-GUARANTE BOUGLAS MFG CORP EARTHER HATGUARE MFG CORP EARTHER HATGUARE MFG CORP REYMOLDS METALS CO BUILDING PRODS STANLEY WORKS

HARDWARE, WINDOW Acora Mig Co ADAMS RITE MFG CO American Brass Goods Co AMERICAN CASINET HARDWARE CORP CASEMENT HARDWARE CO Champson Haroware Co Cipes Corp Clinton Lock Co CORBIN (P & F) DIV AMERICAN HARD-WARE CERF Dennis (W J) & Co Detroit Hardware Bifg Co Erea Mfg Co FENESTRA BUILDING PRODUCTS Finale Equipment Mig Co FRANTZ MFG CO GATE CITY SASM & BOOR CO GETTY (N S) & CO INC GRANT PULLEY & MARDWARE CO Griffin Mrg Co MAGER (C) & SONS HINGE MFG CO Harvard Lock Co Ideal Brass Works Independent Lock Co Ives (H B) Co

LAWYPICE Brothers LOCKWOOD HARDWARE MFG CO MACKLANGURG-DEMCAN CO McKinney Mig Co HATIONAL BEASS CO HATIONAL LOCK CO HATIONAL MIC CO WATIONAL MIC CO Normal Lock Co Dir Regal Lock & Hardware (O

arson (Charles 0) atch Lock Mfg Co

Co
Partier (8) Hardware Mfg Corp
Partyn Ltd
Partyn Ltd
Penbody Co Inc.
Penn Hardware Co
Petixo Industries
Phenix Mfg Co Inc
Bending Hardware Corp
Bender Parlinek Co
BICHARDS-WILCOX MFG CO RUSSELL & ERWIN DIV AMERICAN RARB-WARE CORP

WARE CORP Safe Padlock & Hardware Co Sager-Barrows Lock Wurks SARGENT & CO SANGENY & CO Sharon Hardware Mfg Co Shelby Metal Products Co Skillman Hardware Co

Sterling-Freeland Industries Inc STERLING HARDWARE MFG CO Sun Metal Products Co Vimear Bales Co Whitney (Vincent) Co YALE & TOWNE MFG CO

HASPS, HINGE

ALLITH-PROUTY INC American Hinge Co Champion Hardware Co Champion Hardware Co CORBIN (P & F) DIV AMERICAN HARD- HEATERS, GAS WARE CORP Fiwale Equipment Mfg Co FRANTZ MFG CO Warehouse Co Gensco Tool Div Griffin Mfg Co MAGER (C) & SONS WINGE MFG CO Master Lock Co
McKinney Mig Co
NATIONAL BRASS CO
NATIONAL DICK CO
NIGENESS
NICARODS-WILLOR MFG CO
RUSSELL-ERWIN DIV AMERICAN HARDWARE CORP
Safe Padlock & Hardware Co
Sharon Hardware Mfg Co

STANLEY WORKS **HATCHETS** 

ridgeport Hardware Mfg Corp Collins Comp.
Estwing Mfg Co
GOLDBLATT TOOL CO
MARKWELL MFG CO INC
Slow & Wilcox Co
Pl Inc Plumb (Fayette R) Inc STANLEY TOOLS DIV STANLEY WORKS True Temper Corp Vaughan & Bushnell Mfg Co

#### HEADS, BRUSH BACKED SANDER

Arcade Mfg Div Rockwell Mfg Co Vonnegut Moulder Corp

#### HEADS, CUTTER

Ekstorm Carlson & Co Huther Brothers Saw Mfg Co Shimer (Samnel J) & Sons Inc Wilson Saw Div Media Machine Works

HEADS, DADO

Saw Mill Machinery Co ATRINS (E. C.) CO CONSOLIDATED MACHINERY & SUPPLY CO DISSTON (HENRY) & SONS INC Onlen-Bishop Co ROCKWELL MFG CO Toolkraft Corp Western Saw Works

#### HEADS, SPRINKLER

Allen (W D) Mfg Co Dayton Irrigation Co Ross Sprinkler Co Skinner Irrigation Co

#### **▶** HEARTH, CANTILEVER

Donley Brothers

#### HEATERS, BATHROOM

Adam (Frank) Electric Co Day & Night Mfg Div Affiliated Gas Equipment MERSON ELECTRIC MFG CO Gaibraith (C.C.) & Sons
La Salle Lighting Products Inc
MARKEL ELECTRIC PRODUCTS INC
MIAMI CABINET DIV CAREY (PHILIP)
MFG. CO

SHEPLER MFG CO Thermador Electrical Mfg Co WESTINGHOUSE ELECTRIC CORP

#### HEATERS, COAL

Athens Stove Works
AMERICAN RADIATOR & STANDARD SANITARY CORP

Anchor Div Stratton & Terstegge Co Inc Dunley Bruthers Exception Store & Mic Co sonley Brothers

Execution Store & Mfg Co

Fray & Dudley Co

Lart Mfg Co

International Heater Co

Ling Store & Range Co

Ersus (Walter S) Co Malicable Iron Range Co NORGE HEAT DIV BORG-WARNER CORP Red Jacket Coal Sales C Washington Store Works

#### HEATERS, CONCRETE

Aeroil Products Co Inc American Steel Works Hauck Mfg Co Unique Mfg Co Inc

#### HEATERS, ELECTRIC

Adam (Frank) Electric Co Armstrong Products Corp Coburn Mfg Co Colloid Equipment Co Inc Coburn Mfg Co Coiloid Equipment Co Inc Eagle Electric Mfg Co Inc Excelsion Stove & Mfg Co Pioneer Co Wayne Home Equipment Co

American Gas Machine Co AMERICAN RADIATOR & STANDARD SANI-Armstrong Products Corp BRYANT NEATER DIV AFFILIATED GAS EQUIPMENT INC

Combustion Engineering Superheater Inc COROAIRE NEATER CORP COMMANDER DIV MOUN
Empire Stove Co
Excessor Stove & Mfg Co
Excessor & Mfg Co
E Wheel Corp.

Locke Stave Co NORGE HEAT DIV BORG-WARNER CORP PORTABLE HEATER CO REZNOR MFG CO

NOVAL NEATHER AND RUND MEG CO SMEPLER MEG CO SURFACE COMBUSTION COMP Trane Co Tri-Therm Heater Co Wayne Home Equipment Co Zink (John) Co

#### HEATERS, OIL

Aeroil Products Co Inc American Gas Machine Co COLEMAN COMPANY Pravo Corp Estate Stove Co Div Noma Electric Co Excelsior Stove & Mfg Co Florence Store Co GENERAL ELECTRIC CO AIR CONDITION-ING GEPT

Gray & Dudley Co International Reater Co Kresky Mfg Co KRESNO-STAMM MFG CORP Lindemann (A J) & Hoserson Co LITTLE (M C) BURNER CO National Airoil Burner Co
NORGE HEAT DIV BORG-WARNER CORP
Northwest Metal Products Inc Perfection Stove Co Prentiss Walers Products Co Quaker Mfg Co Silent Shoux Gil Burner Corp Silent Sloux Oil Burner Corp I'S Machine Corp Washington Stove Works Wayne Home Equipment Co York-Shipley Inc

#### HEATERS, PORTABLE. ELECTRIC

CONCO ENGINEERING WORKS CONKEY (N D) CO CONTINENTAL RADIANT GLASS HEATING Dayton Electric Mfg Co Dry Clime Lamp Cord

Economaster Products Co Inc EMERSON ELECTRIC MFG CO Calletath (\*C.) & Some Calletath (\*C.) & G. G. H. Laboratories Interprist Monte Corp. Justite Mig. (\*S. Manp-Monarch Co. Landers Prany & Clark Landers Prany & Clark Lawson Mig. (\*G.) Products Inc. Lawson Mig. (\*G.)

MARKEL ELECTRIC PRODUCTS INC. Metal Products Mfg Co Miller-Somes Inc National Die Casting Co

National Ideal Co Noblitt-Sparks Industries Inc Noma Electric Co Radiant Heater Corp Radiant Heater Corp Rutenber Electric Co Inc SNEPLER MFG CO sparion Electric Co superior Electric Products Corp wartzhaugh Mfg Co leunessee Valley Associated Mar legfer Appliance Co Inc lesco Inc sciated Marketers ador Electric Mfg Co Wells Lamp Corp WESTINGHOUSE ELECTRIC CO Witte Mfg & Sales Co

HEATERS, ROOM

Adam (Franh) Electric to
Frank) Electric to
Grant Treatment of the
BUTANT HEALER DIV AFFILIATED CAS
EQUIPMENT INC
Caloric Gas Store Works
Clattanooga Implement & Mrg Co
Cole Hot Blast Mrg Co Cole Ban Co Inc.

David-Maychel: Tool Curp

David-Maychel: Tool Curp

David-Maychel: Tool Curp

David-Maychel: Tool Curp

Bown Therm Die Medor Wheel Curp

Evans Products Co

Valantano Store & Furtice: Co

Valantano Tool

Tool Tool Corp v Motor Wheel Corp

Kresky Mfg Co LA SALLE LIGHTING PRODUCTS INC LITTLE (M C) BURNER CO INC Locke Store Co Majestic Co Markel Electric Products INC NATIONAL RADIATOR CO

Nesco
Payne Furnace Co
Pearless Mfg Corp
Pearless Mfg Corp
Perfection Store Co
Prentiss Wabers Products Co
quark Mfg Co
SWEPLEN MFG CO
SMEPLEN MFG CO
SMEPLEN MFG CO
SMEPLEN MFG CO
US Blanter Corp
US Blanter Corp
US Blanter Corp
US Blanter Corp

Viking Mfg Corp WESTINGHOUSE ELECTRIC CORP

#### HEATERS, TANK

PIEALERS,
Brower Mfg Co
Butler Company
Colloid Equipment Co Inc
Dempster Mill Mfg Co
Excelsior Store & Mfg Co
Excelsior Store & Mfg Co
Excelsior Store & Mfg Co
Oxtional Airoll Burner Co
QUEEN STOVE WORKS
Sichring Mfg Co
Trent Inc Siebring Mfg Co Trent Inc Tri-Therm Heater Co

#### HEATERS, TANKLESS WATER

BELL & GOSSETT CO General Fittings Co Midget Heater & Specialty Co Red Spot Electric Co Taco Heaters Inc THRUSH (H A) CO Triplex Heating Specialties Co

#### HEATERS, UNIT

American Gas Machine Co Automatic Gas Equipment Co Broan Mfg Co Inc Day & Night Mfg Div Amiliated Gas Equipment Inc Electromode Mfg Corp Hartzell Propeller Fan Co Div Castle Hills Kresky Mfg Co LITTLE (W C) BURNER CO Peerless Mfg Co SURFACE COMBUSTION CORP Trane Company
Ttility Appliance Corp
Wesix Electric Heater
YOUNG RADIATOR CO

#### HEATERS, WALL

Adam (Frank) Electric Co Adams Brothers Mfg Co COLEMAN CO INC CORDAIRE HEATER CORP Calvaint (C C) & Son GENERAL ELECTRIC CO AIR CONDITION-INC GEFT HOLLY NFG CO Kresky Mig Co Inc Landers Frany & Clark Landers Fraty & Clark
La Salle Lighting Products Inc
MARKEL ELECTRIC PRODUCTS
MIABLE CABRET DIV CAREV (PHILIP)
MRG.CO
ONIO FOUNDRY & MFG CO

Poerless Mfg Corp SNEPLER MFG CO Thermador Electrical Mfg Co Thermador Electrical Mrg Co Titan Mrg Co Westx Electric Hester Co WESTINGHOUSE ELECTRIC CORP

#### HEATERS, WATER

Airtemp Dis Chrysler Corp.
ALDRICH CO DIV BREEZE CORP INC. American Gas Machine Co AMERICAN RADIATOR & STANDARD SANI-TARY CORP American & Southern Corp Automatic Electric Co Inc

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Hard Mig Co BELL & GOSSETT CO BELL & GOSSETT CO BENYART MEATER DIV AFFILIATED GAS EQUIPMENT INC Constant & Lambert Mig Co

ets Co Toridheet Div

Combustion Engineering-Superheater Inc CONCO ENGINEERING WORKS DIV CONKEY (N D). CO CARNE COMPANY Crane Electric Industries Day & Night Mfg Div Affiliated Gas Equip-ment Inc. DELCE APPLIANCE DIV GENERAL MOTORS

Dowagiae Steel Furnace Co Duo-Therm Div Motor Wheel Corp.

no-Therm Less Jectromaster Lvans Products Co Sxrelsior Store & Mfg Co Fairbanks Morse & Co outer Mig. Co.
Frinchistor Cop.
Frinchistor Cop.
SEMERAL ELECTRIC CO APPLIANCES &
MERCHANDISE DEPT
General Implement Cop.
General Water Heater Cop.
Gilten (J. L) Co.
Hedgen (M. M.)

Hedges (M M) ( MOTPOINT INC Holstream Heater Co Hyren & Cox Electric Co International Heater Co JOHNSON (S. T) CO KELVINATOR DIV MASH-KELVINATOR CO

King Store & Bange Co KOVEN (L 0) & BROTHER INC. Kresky Mfg Co KRESNO STAMM NFG CORP Landers Frary & Clark
Lawson Mfg Co
Leeson Steel Products Inc
Lindemann (A J) & Hoverson
LITTLE (W C) BURNER CO McGraw Electric Co Norge Heat DIV BORG-WARNER CORP

Rund Mfg Co Sav-U-Time Devices Inc Sepco Corporation Sepen Corporation Servel Inc Smith (A 0) Corp

Smith (A D) Corp Standard Gas Equipment Corp Swartsbaugh Mfg Co Taco Heaters Inc Thermador Electrical Mfg Co TIMKER SILERNI AUTOMATIC DIV TIM-KEN DETROIT AXIE CO "No-Thurn Heater Co Wesix Electric Heater Co WESTINGHOUSE ELECTRIC CORP

White Products Corp Whitehead (Jud) Heater Co Williams Oil-O-Matic Div Eureka-Williams Co

#### **▶** HEATING CONTROLS

BARBER-COLMAN CO RELL & GOSSETT CO. CONCO ENGINEERING WORKS Cook Electric Co
CRAME CO
DELCO APPLIANCE DIV GENERAL NOTORS
CORP
Detroit Lubricator Co
GENERAL CONTROLS CO
GENERAL ELECTRIC APPARATUS DEPT Locke Store Co MERCOID CORP MINNEAPOLIS-HONEYWELL REGULATOR Powers Regulator Co Robertshaw-Fulton Controls Co Robertshaw Thermostat Div Sambekg Mfg Co Sampsel Time Control Inc reotherm Controls Inc encer Thermostat Div Metals & Controls Corp Taco Heaters Inc Taylor Instrument Companies Uni-Therm Prods Co Webster (Warren) & Co White Rodgers Electric Co

#### ▶ HEATING SYSTEMS BASE-BOARD

White Rodgers Electric Co YOUNG REGULATOR CO

AMERICAN RADIATOR & STANDARD SANI-TARY CORP ERANGE CORP CRAME CO CRARE CO Fedders Quigan Minimite Co Neshitt (John J) Inc Radiant-Ray Radiation Inc

#### HEATING, SYSTEMS, HOT WATER OR STEAM

Airtemp Div Chrysler Corp ALDRICH CO AMERICAN RADIATOR & STANDARD SANI-TARY CORP
BELL & GOSSETT CO Bryant Heater DIV Affiliated GAS EQUIPMENT INC BURNHAM CO BOILER DIV CERRE COMPANY
DELCO APPLIANCE DIV GENERAL MOTORS
ERRE
TAITMANS MOTOR & CO Faffmaks Morne & Co Fedders Quignan Flizabbons Boller Co GENERAL ELECTRIC CO AIR CONDITION-ING DEPT ING DEPT ING DEPT GENERAL ELECTRIC CO AIR CONDITION-ING DEPT & BARLEY MIG CO Hodges-Walsh-Welder Div Combustion Em-gineering Superheater Inc Holtstream Heater Co Houstwarm Heater Co Houstwarm Heater Co International Heater Co Houstwarm Heater Co Kaustine Co Inc Keaner Boller & Mig Co Keaner Boller & Mig Co KRESSO STAMM NFG CORP LITTLE (N. C.) BURNER CO Lookout Boller & Mig Co McCool Copy Lochout Boiler & Mig Co McCord Copy MBDINE MFG CO MUELLER (L 1) FURBACE CO Murror (R) & Sons Mfg Corp Murray (P) J Mfg Co MATIONAL BABATOB CO MATIONAL BABATOB CO MATEMATE TOV SOME WARNER CORP Dilux Co Penn Boiler & Burner Mfg Corp Persiro Mfg Corp RICHMOND RADIATOR CO Spencer Lycoming Div Aveo Mfg Corp SURFACE COMBUSTION CORP SUBTRACT COMMONSTRACT
TAGE HEATERS IN A CO
TIMERS SILENT AUTOMATIC DIV TIMWEN DETROIT AXLE CO Trane Company
Triplex Heating Specialties Co
U S Badiator Corp Utica Radiator Corp
WATERFILM BOILERS INC
Wayne Home Equipment Co
Webster (Warren) & Co
Will-Burt Co
Will-Burt Co
Williams Oil-O-Matic Div Eureks-Williams

### ► HEATING SYSTEMS, RADI-

York-Shipley Inc.

BELL & GOSSETT CO BRYANT HEATER DIV AFFILIATED GAS EQUIPMENT INC. BUNDY TUBING CO CONTROLLED TO CO Taco Heaters Inc THRUSH (N A) & CO Utica Esdiator Corp.

#### ▶ HEATING SYSTEMS, RADI-ANT PANELS

Appleman Art Glass Works Inc Continental Badiant Glass Beating Corp Mueller Brass Co Radiant Baseboard Panels Inc U 8 Rubber Co

### **▶** HEATING SYSTEMS, WARM

Airtemp Dir Chrysler Corp American Gas Machine Co AMERICAN HADIATOR & STANDARD SANI-TARY CERP Stratton & Terstegge Co Inc Anchor DIV Straton & Terraggie Co Inc Armstrong Funnace Co BRYANT WEATER BIV AFFILIATED GAS EQUIPMENT INC EARNEER CHEP COLCEND ON Proft Furnace Co COLEMAN CO INC CONCE BEGINEERING WORKS BIV CONKEY CONCE BEGINEERING WORKS BIV CONKEY CORDE EMBINECHME

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ild Heat Div Anchor Post Products Inc.

Find Heat Div Ancher From trommen and For Furnace For Furnace Co Air Committee Co Air Co Air Committee Co Air Co Air Committee Co Air Co Air Committee Co Air Committee Co Air Co Kresky Mfg Co Inc KRESNO STAMM MFG COMP Lennox Furnace Co LITTLE (N C) BURNER CO

NATIONAL WARM AND MORE COMP MORE CHEAT DIV BORG-WARNER COMP MORBAN PRODUCTS CO Northwest Metal Products Inc Oakland Foundry Co Payne Furnace & Supply Co Payne Furnace & Supply Co

Pagne Furnace & Supply Co Penn Boiler & Burner Mfg Co Perfection Stove Co Persiro Mfg Corp Quiet Automatic Burner Corp Quiet Automatic Burner Cor REZNOR MFG CO RICHMOND RADIATOR CO Silent Sioux Oil Burner Corp SURFACE COMBUSTION CORP SUBFACE COMMUNITIES CONViking Mfg Corp
Wayne Home Equipment Co
Wheeling Furnace Corp
Will-Burt Co
Will-Burt Co
Williams Oil-O-Matic Div Eureka-Williams Corp. WILLIAMSON NEATER CO

HINGES, BALL BEARING

ALLITH-PROUTY MFG CO CORDIN (P & F) DIV AMERICAN HARD-WARE CORP Fiwale Equipment Mfg Co NAGER (C) & SONS NINGE NFG CO LOCKWOOD HARDWARE NFG CO McKinney Mfg Co RICHARDS-WILCOX MFG CO STANLEY WORKS YALE & TOWNE MFG CO

#### HINGES, BUTT

Ajax Hardware Mfg Corp AMERICAN CABINET HARDWARE CORP FRANTZ MFG CO Garden City Plating & Mfg Co Gensco Tool Div General Steel Watchouse Co GETTY (N S) & CO INC Friffin Mirg Co. deal Brass Works Aurence Brothers NATIONAL LOCK CO NATIONAL MFG CO Norwalk Lock Co Div Segal Lock & Hardware Co Pacific Brass & Hardware Mfg Co Parker (S) Hardware Mfg Co

Penn Hardware Co
PICO ANDSTREE
RICHARDS-WILCOX MFG CO
RICHARDS-WALE CRIP
WARE CRIP
SAFE PAIRON: A HARDWARE CO
SAGE PAIRON: Lock Works
SAREENT & CO
Sharon Hardware Mfg Co
Sharon Hardware Mfg Co Skilman Hardware Mig C Stanley Works Wagner MFG Co Yale 4 Towne MFG Co

#### HINGES, CONTINUOUS

HAGER (C) & SONS HINGE MFG CO

#### HINGES, FLOOR

Bommer Spring Hinge Co Chicago Spring Hinge Co Clinton Lock Co FRANTZ MFG CO HAGER (C) & SONS HINGE MFG CO NATIONAL MFG CO PITTSBURGH PLATE GLASS CO RUSSELL & ERWIN DIV AMERICAN HARD-WARE CORP Shelby Spring Hinge Co.

#### HINGES, GATE

Chicago Spring Hinge Co Consin (P & F) DIV AMERICAN HARD-WARE CORP Cyclone Fence Div American Steel & Wire Co Grimn Mig Co MAGER (C) 4 SONS HINGE MFG CO Ideal Brass Works Inc KEYSTONE STEEL 4 WIRE CO NATIONAL MFG CO RUSSELL & ERWIN DIV AMERICAN HARD-WARE CORP STANLEY WORKS WAGNER MFG CO

#### HINGES, INVISIBLE

AMERICAN CABINET NARDWARE CORP MATIONAL LOCK CO Parker (S) Hardware Mfg Co RICHARDS-WILCOX MFG CO RUSSELL & ERWIN DIV AMERICAN MARD-WARE CORP STANLEY WORKS

#### HINGESS, IRON RECESS erican Hinge Co.

HINGES, SPRING, DOOR

AMERICAN CABINET HARDWARE CORP Bottmer Spring Hinge Co Chicago Spring Hinge Co Cleveland Lock Works
CORBIN (P & F) DIV AMERICAN MARDWARE CORP "WARE COMP "WARE Equipment Mfg Co RANTZ MFG CO Jenseo Tool Div General Steel Warehouse Co HAGER (C) & SONS HINGE MFE CO Ine ace Brothers

Milwaukee Stamping Co NATIONAL MFG CO RUSSELL & ERWIN DIV AMERICAN MARO-WARE CORP Sharon Hardware Mfg Co Shelby Spring Hinge Co STANLEY WORKS

#### HINGES, STRAP

Acorn Mfg Co Brainerd Mfg Co Champion Hardware Co Cleveland Lock Works CORRUN (F & F) DIV AMERICAN NARD-WARE CORP Mfg Co RANTZ MFG CO leases Tool Div General Steel Warehouse Co iriffin Mfg Co IAGER (C) & SONS NINGE MFG CO Johnson Industries Inc Knape & Vort Mrg Co McKinuey Mrg Co MATIONAL BRASS CO NATIONAL BRASS CO NATIONAL MFG CO Parker (83) Hardware Mfg Corp Peters (James) & Son Reflects Letters Reflecto Letters
RICHARDS-WILCOX MFG CO
RICHARDS-WILCOX MFG CO
WARE CORP
Sharon Hardware Co STANLEY WORKS WAGNER MFG CO

#### HOES, MORTAR

Ames Baldwin Wyoming Co Boyle Mfg Co True Temper Corp Union Fork & Hoe Co

#### HOISTS, CHAIN

YALE & TOWNE MFG CO

American Chain Div of American Chain & Cable Co Chisholm Moore Hoist Corp Div Columbus Mc-Chistolia Moore Hoist Corp Dir Columbus Mc-Kinnon Chisto Corp Cleveland Transrall Dir Cleveland Crane & Engineering Co Coffing Hoist Co Ford Chain Riock Div American Chain & Cable Co Inc Moore Dry Kill Co Reading Chain & Block Corp Western Foundty Co Wright Hoist Div American Chain & Cable Co Inc.

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### HOISTS, CONCRETE BLOCK

Stearns Mig Co Inc

#### HOISTS, ELECTRIC KING MFG CO

#### HOISTS, MECHANICAL POWERED

ALLIS CHALMERS MFG CO. American Engineering Co American Hoist & Derrick Co BENNETT-INELAND INC Bridgeport Chain & Mig Co
Bridgeport Chain & Mig Co
Chisholm Moore Bolst Corp Div Columbus-MeKinnon Chain Corp.
Cleveland Tramrall Div Cleveland Crause &
Engineering Co
Clyde Hon Works Inc
Coffine Holst Co Construction Machinery Sales Co ESSICK MFG CO Gifford-Wood Co HARNISCHFEGER CORPORATION HARNISCHFEGER CORPORATION
HISTOR WACHING CO
JACGER WACHING CO
Levis-Shepard Products Inc
Liston Hoist & Crane Co
Lution Machinery Co
Master Electric Co
Lution Co
Master Electric Co
Lution Hoist & Crane Co
Lution Hoist & Crane Co
Lution Machinery Co
Master Electric Co
Nove Engine Co
Nove Eng

SHIPH'S HOIST & MANUFACTURING CO Starline Inc Stimmel Winch Co Vulcan Iron Works Co Washington Iron Works Whiting Corp Wright Hoist Div American Chain & Cable Co

#### YALE & TOWNE MFG CO

### HOISTS, PORTABLE CLIPPER MFG CO CONSTRUCTION MACHINERY SALES CO JAEGER MACHINE CO KING MFG CO

#### HOISTS, ROPE

merican Engineering Co H & E Mfg Co lyde Iron Works Inc C H & E Mrg Co Clybe from Works Inc Coburn Mrg Co Detroit Blost & Machine Co Detroit Blost & Machine Co Lambre Mrg Co Louden Machinery Co Ney Mrg Co Griginal Enderan Co Shepard Nille Crane & Heist Corp Startine Inc

#### HOISTS, SKIP

ALLIS-CHALMERS MFG CO American Hoist & Der. Brady Conveyors Corp Concrete Transport M: Fairbanks Morse & Co Jeffrey Mg Co Link-Bett Co Link-Bett Co Little Glant Products Ine Nef & Fry Co Staw Box Crame & Hoist Div Manning Max well & Moore Inc Silent Hoist & Crame Co

#### HOISTS, TRUCK

Anthony Company Cemco Industries Inc Gallon Allisteel Body Co GETTY (N S) & CO INC Heil Company Hercules Steel Products Corp Hyster Company KEWANEE MFG CO KEWAMEE MFG CO Little Giant Products for Marion Metal Products Co Perfection Stee Body Co St. Paul Bydraulic Hoist Div Wood (Gar) Industries the Hoist Div Manning Max-well & Mouver Inc Silvest Bodst & Crame Co Stiment Winch Co

#### HOLDERS, PORTABLE **RECORD FORMS**

erris Business Equip Inc ational Cash Begister Co

HOLDERS, SAND PAPER

#### **▶** HOME FREEZERS

Amana Society
AMERICAN CENTRAL DIV AVCO MFG
COMP CONF American Refrigerator & Machine Co Ben-Hur Mfg Co Brewer-Titchener Corp Clayton & Lambert Mfg Co Coolerator Corp COOSEEY DIV AVCO MFG CO Deepfreeze Div Motor Products Corp BeLaval Separator Co Esco Cabinet Co

sco Cabinet Co ogel Refrigerator Co Frigidaire Die General Motors Corp GENERAL ELECTRIC CO APPLIANCE & MERCHANDISE DEPT

Gilfillan Bros Inc. MOTPOINT INC. KELVINATOR DIV NASH-KELVINATOR CO.

(A J) & Hoverson Co

Muncie Gest Co NORGE DIV NORG-WARNER CORP (APPLI-ANCE DIV)

BEHR-MANNING CORP DIV NORTON CO Carborundum Company GETTY (N S) & CO INC

#### HOOKS, CHAIN

nerican Logging Tool Co wwer-Titchener Corp amond Calk & Bormshoe Co

#### HOOKS, CUP AND SHOULDER

#### HOOKS, PLASTIC

Fiwale Equipment Mfg Co GETTY (M S) & CO INC

### HOOKS AND EYES, GATE

Larson (Charles G) Co SARGENT & CO

### HOOKS AND EYES, SCREW

Grand Rapids Bruss Co NAGER (C) & SON WINGE MFG CO Judd (H L) Co Inc Larson (Charles O) Co Lawrence Brothers WATISNAL LSCK CO SARGENT & CO

#### **▶** HOPPERS, AUTOMATIC WEIGHING

RESSER NEG CA CONSTRUCTION WACHINERY SALES CO WORTHINGTON PUMP & MACHINERY CORP

#### HORSES, SAW

briel Steel Co Leach Company National Tool & Die Co Newark Ladder & Bracket Co Inc. Toledo Premed Steel Co Trestle Mfg Co

#### HOSE, AIR COMPRESSOR

COMPTREDUCK
Arms Rubber Mig Co
Boston Waven Hose & Bubber Co
Broadway Rubber Mig Co
Cincinnati Rubber Mig Co
Cincinnati Rubber Mig Co
Continental Rubber Wirks
Bev Ulbias Company
Electric Sparyi Co
Gates Rubber Co
Gates Rub Div Republic Rubber Div Lee Rubber & Tire Corp Sta-Warm Electric Co Thermoid Company Union Rubber & Asbestos Co

WORTHINGTON PUMP & MACHINERY CORP

#### HOSE, GARDEN

Acme Eubber Mfg Co Buston Woven Hone & Eubber Co Brandway Rubber Mfg Co Cincinnati Rubber Mfg Co Cincinnati Rubber Mfg Co Diamond Rubber Div Goodrich (B F) Co Diamond Rubber Dir Goodrich (B F) Franklin Rubber Corp Gates Rubber Co Goodraft Rubber Co Goodraft Tire & Rubber Co Hewitt Rubber Dir Hewitt Robins Inc Keystone Brass & Rubber Co Unen Rubber Products Diymonds Rubber Co Inc. Plymouth Rubber Co Inc Jusker Rubber Corp Raybeston-Manhattan Inc Manhattan Rubber Raybeston-Manhattan Inc Manhattan Rubber Div Republic Rubber Div Lee Bubber & Tire Corp Skyline Industries Thermoid Co Trenton Rubber Mfg Co

Allen W D) Mg Co Buston Wowen Home & Bubber Co Buston Wowen Home & Bob Countinental Rubber Works Elkhart Brass Mfg Co General Detroit Corp Goodall Rubber Co Raybeeto-Manhattan Inc Manhattan Bubber Raybeeto-Manhattan Inc

Union Rubber & Asbeston Co U S Rubber Co Wirt & Knox Mfg Co

#### **HYDRANTS**

erican Foundry & Mfg Co-CRANE COMPANY Eddy Valve Co Knights (James) Co Murdock Mfg & Supply Co Woodford Hydrant Co

#### HYDRAULIC TAIL GATES

Anthony Co Inc Cemen Industries Inc Day Company Fruebauf Trailer Co Hell Co Hercubes Steel Products Corp Ferfection Steel Body Co

#### **► INCINERATORS**

American Incinerator Corp BBWSER INC
RIUB Indirectators
Clear Mig Co
Colloid Equipment Co Inc
Detents! Michigan Store Co
Doubley Brothers
Co
Fiske I, Wi Iron Works
Goder (Joseph) Indirectator
Houston Blow Pipe & Sheet Metal Works
Indirectator Products Co
Industrial Iron Works
Control Control Control
Indirectator Products Co
Industrial Iron Works
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MAJESTIC COMPANY Morse Boulger Destructor Co Otio Stove Co Pittsburgh Incinerator Co Seattle Boiler Works Syracuse Alloy Metals Corp Valley Welding & Boiler Co Watson Sales Mfg Co Watson Sales Mfg Co

#### INDICATORS, BUTTON LUCKWOOD HARDWARE MFG CO

### INKS, LUMBER MARKING

MARKWELL MFG CO INC Matthews (James H) & Co Speedry Products Inc

#### **► INSECTICIDES**

esto Mfg Corp American Agricultural Chemical Co American Cyanamid Co American Oil Co BARRETT DIV ALLIED CHEMICAL & DYE CORP

CORP
Sengal Company
Southide Chemical Co
Soyer Chemical Laboratory Co
Soyie Midway Inc
Camp Chemical Co Inc
Carboia Chemical Co Inc
Carboia Chemical Co Inc
Carboia Chemical Co
Cedacote Mig Co
Channa Chemical Co
Cedacote Mig Co
Channa Chemical Co Carbolineum Wood Preserving Co
Cedacote Mg Co
Chapuna Clemical Supply Co
Conpers Creek Themical Cor
Coopers Creek Themical Cor
Dou'bout (E I) de Nemours & Co
Glidden Compact
Gordon (George C) Chemical Co
Harris Products Co Ine
Lilly Products Co
Lilly Products Co
Melinabard (J A) & Co
Monsanto Chemical Co
Nourse Oil Co
Overlac Competition
Overlac Competition
Overlac Competition
Overlac Competition
Overlac Competition
Overlac Competition Nourse Oil Co O'Cedar Corporation

Pennsylvania Salt Mfg Co PITTSBURGH PLATE GLASS CO Plunkett Chemical Co PROTECTION PRODUCTS MFG CO

Puritan Chemical Co Rat Biscuit Co Rotenone Products Co Inc Schutte Laboratories Sherwin-Williams Co Sinclair Befining Co

Socony-Vacuum Oil Co Inc SOLVAY SALES DIV ALLIED CHEMICAL & DVE CORP Standard Oil Ce of Ind Stark (N H) & Co Swift & Co Swift & Co
Tanglefoot Company
U.S. Rubber Co
Vaporine Company
Wood-Treating Chemicals Co

#### INSTRUMENTS, DRAFTING

Dietagen (Eugene) Co Eberhard Faber Peneil Co Higgins (Charles M) Co KEUFFEL & ESSER CO Loomic Leduction Loomis Industries Pickett & Eckel Inc Post (Frederick) Co Post (Frederics) to Smith (H &) Co Stiles (H A) Co Universal Brafting Machine Corp. WARREN-KNIGHT CO WHITE (DAVID) CO WOOdrow Engineering Co

#### INSTRUMENTS, INDICATING, RECORDING AND CON-TROLLING

Bradley (L R) & Co Colloid Equipment Co Inc Fexboro Company GENERAL ELECTRIC CO APPARATUS DEPT MINNEAPOLIS HONEYWELL REGULATOR

MINNEAPOLIS MONEYWELL REC E0 Moore Dry Klin Co Newark Boiler Regulator Corp Tagliabus (C J) Corp Taylor Instrument Co Weston Electrical Instrument Corp Wheelco Instruments Co

#### INSTRUMENTS, SURVEYING

Argyle Manufacturing Co BOSTROM-BRADY MFG CO ts Co Keystone Asphalt Pro-Post (Frederick) Co-Royal Oak Industries

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### INSULATION, ALUMINUM

Barnhardt Mfg Co CERTAIN-TEED PRODUCTS CORP INFRA INSULATION INC Inst-Cotton Dis Taylor Bedding Mfg Co NATIONAL GYPSUM CO New Holland Metals Co PROTECTIVE PAPERS CO REYNOLDS METALS CO BUILDING PROD-UCTS DIV U S Gypeum Co

#### INSULATION, BATT OR **BLANKET, COTTON FIBER**

Barnhardt Mfg Co CELOTEX CORP CERTAIN-TEED PRODUCTS CORP CERTAIN-TELEVIOLE
Gilman Brothers Co
Inst-Cotton Div Taylor Bedding Mfg Co
Insulation Industries Inc Janewille Cotton Mills Co
Janewille Cotton Mills Co
LOCKPORT COTTON BATTING CO
LOCKPORT COTTON BATTING CO
RECTS DUE TIALS CO SULLOING PROBNITES DUE TIALS CO SULLOING PROBNITES DUE TIALS CO
L'S Rubber Co
U S Rubber Co

#### INSULATION, BATT OR BLANKET, COTTON FIBER, **ALUMINUM FOIL**

in Div Taylor Bedding Mfg Co Insulation Industries Inc LOCKPORT COTTON BATTING CO

#### INSULATION, BATT OR **BLANKET, FIBROUS GLASS** OWENS-CORNING FIRERGLAS CORP

#### INSULATION, BATT OR BLANKET, MINERAL WOOL

Acme Ashestos Covering & Flooring Co ARMSTRONG CORK CO BARRETT DIV ALLIED CHEMICAL & DYE CAREY (PHILIP) MFG CO CELOTEX CORP
CERTAIN-TEED PRODUCTS CORP
Coast Insulating Products
Corson (G & WH) Inc LINTROTE COMPANY Forty-Eight Insulations Inc
GREAT LAKES CARBON CORP BUILDING
PRODUCTS DIV Industrial Products Co
INSULITE DIV MINNESOTA & ONTARIO
PAFER CO

PAPER CH Insul-Wood Insulation Corp JOHNS-MANVILLE CORP Kelley Island Lime & Transport Co Kimberly Clark Corp Kimsul Div MASONITE CORPORATION Mineral Insulation Co MATIONAL CYPSUM CO National Bock Wool Sales Inc Plastergon Wall Board Co Riverton Lime & Stone Co Inc RODDIS PLYWOOD COMP RUBERBID COMPANY Sealtite Insulation Mfg Corp Tennessee Products & Chemical Corp. U S Gypsum Co U S Mineral Wool Co Western Mineral Products Co

#### INSULATION, BATT OR BLANKET, WOOD FIBER

CABOT (SAMUEL) INC Kimberly-Clark Corp.
MASONITE CORPORATION
PACIFIC LUMBER CO.
RODDIS PLYWOOD CORP.
SIMPSON LOGGING CO.
WOOD CONVERSION CO.

## INSULATION, BLOWING

Ashestos Asphalt & Insulation Inc BARRETT BIV ALLIED CHEMICAL & DYE Burton (S T) Co CAREY (PHILIP) MFG CO CELOTEX CORP Eagle-Picher Co
Forty-Eight Insulations Ine
Insul-Wool Insulation Corp.
JOHNS-WANVILLE CORP.
WATIONAL CYPSUM CO
Pal-0-Pak Insulation Co
Scalitic Insulation Mig Co
I'S Gypeum Co
I'S Gypeum Co
I'S Mineral Wool Co WOOD CONVERSION CO

INSULATION, BOARD, CORK ARMSTRONG CORK CO BUILDING MATE-

#### INSULATION, BOARD, FIBER

Air-O-Cel Co ARMSTRONG CORK CO ARMSTORME CORK CB
BIRD 4.50M INCTING
BIRD 4.50M INCTING
CERTAIN-TEED PRODUCTS CORP
DART 4 RUSSELL
Fir-Ter Insulating Roard Co
FILITMORF CAMPANY
INSULATE DIV MINARCISTA 4 GRTARIO
PAPER CO
JOHNS MARVILLE CORP
(C) HISCONIC CORP.

RESULTING CORP.

INSULTIFE DIV MINARCISTA 4 GRTARIO
PAPER CO
JOHNS MARVILLE CORP. MATIONAL CYPSUM CO Rubatex Div Great American Industries SIMPSON LOGGING CO U S Gypsum Co WOOD CONVERSION CO

#### INSULATION, BOARD, MINERAL WOOL

Acme Ashestos Covering & Flooring Co ARMSTRONG CORK CO BUILDING MATE-RIALS DIV MIALS DIV
Baldwin-Hill Co
CAREY (PMILIP) MFG CO
Chicago Fire Brick Co
Coast Insolating Products
Corson (G & W H) Inc.
Green (A P) Fire Brick Co
JOHNS-MANVILLE COMP
Learn-Long Co Logan-Long Co OWENS-CORNING FIBERGLAS CORP

#### INSULATION, BOARD, REFLECTIVE

Air-O-Cel Co U S Gypnum Co

### INSULATION, CORK

INSULATION, GLASS, CELLU-LAR PITTSBURGH CORNING CORP

INSULATION, GLASS FOAM ARMSTRONG CORK CO PITTSBURGH CORNING CORP

#### INSULATION, GRANULAR FILL. EXPANDED. VERMICU-LITE, ETC.

Alexander Film Co Alexite Engineering Co Div American Bildrok Co American Vermiculite Co Inc Ashestos Supply Co Empire Boofing & Insulation Co Gladding McRean & Co GREAT LAKES CARBON CORP Townletter, Service Co nsulation Service Co ntermountain Insulation Co lineral Products funn & Steele Inc forthwest Insulation Co Northwest Pyramid Co Robinson Insulation Co Robinson (F E) & Co Inc Silbrico Corp
Vermiculite Products Corp
Western Mineral Products Co
2000LITE CO

## INSULATION, LOOSE FILL,

ARMSTRONG CORK CO BUILDING MATE-CATHOR CO INC CERTAIN-TEED PRODUCTS CORP FLINTKOTE CO INSULITE DIV MINNESOTA & ONTARIO PAPER CO Kelley Island Lime & Transport Co OWERS-CORNING FIBERGLAS CORP

#### INSULATION, LOOSE FILL, MINERAL WOOL

Arma Abstant WUOL.
Arma Abstant Covering & Flooring Co
Alton Mineral Wool Co
American Back Wool Co
Asbeston Ambalt Inssistion Inc
Baidwin-Hill Co
Barry Silv Allied Chemical & Dye
Barry Silv Allied Chemical & Dye

CORP Broadway Rubber Mfg Co Burton (8 T) Co CAREY (PNILIP) MFG CO CATTER CO Inc CELOTEX CORP

CERTAIN-TEED PRODUCTS CORP Chamberlin Co of America Inc Chicago Fire Brick Co Coast Insulating Products Cornon (G & W H) Inc EAGIC-PICHER CO FLINTKOTE CO GREAT LAKES CARBON CORP BUILDING PRODUCTS DIV

Insul-Wool Insulation Corp. JOHNS-MANVILLE CORP. Kelley Island Lime & Transport Co. Mineral Insulation Co NATIONAL GYPSUM CO National Rock Wool Sales Inc OWENS-CORNING FIBERGLAS CORP

lastergon Wall Board Co liverton Lime & Stone Co Inc ealtite Insulation Mfg Corp landard Asbeston Mfg Co lennessee Products & Chemical Corp U S Gypsum Co U S Mineral Wool Co

#### INSULATION, LOOSE FILL. **WOOL CELLULOSE**

FLINTMOTE CO Hines (Edward) Lumber Co PACIFIC LUMBER CO Pal-O-Pak Insulation Co Inc

#### INSULATION, PLASTIC

Acme Asbestos Covering & Flooring Co Acme Brick Co Acme Brick Co Acmerican Phenolic Corp AGRICAN PHENDIS COTO
BORTON TO CHEMICA DISC
CAREY (PRILIP) MPG CO
Chicago Fire Brick Co
Dow Chemical Co
Mexico Refractories Co
Quigley Co
Standard Acheston Mfg Co
Superior Plastics Dir Commonwealth Plastics
Inc

### INSULATION, PIPE

Owens-Illinois Glass Co Kaylo Div

#### INSULATION, REFLECTIVE

Alfol Insulation Co American Flange & Mfg Co Inc CELSTEX CORP CERTAIN-TEED PRODUCTS CORP Gilman Brothers Kimberly-Clark Corp LOCKYORT COTTON BATTING CO MASONITE CORP NATIONAL GYPSUM CO PROTECTIVE PAPERS INC REYNOLDS METALS CO BUILDING PROD-HETS DIA: REYNOLDS METALD OF UCTS DIV GREAT CO REDDIS FLYWGOD CORP. Scaltte Insulation Mfg Corp. Silverote Products Inc. SISALKAFT CO Taylor Bedding Mfg Co Caylor Bedding | U.S. Gypsum Co

#### INSULATION, ROOF, DECK Porete Mfg Co SIMPSON LOCGING CO

### INSULATION, SPRAY-ON

Green (A P) Fire Brick Co Mexico Refractories Co Minnesota Mining & Mfg Co Sealtite Insulation Mfg Corp

#### **▶ INTER-COMMUNICATING** SYSTEMS

nth Electrical Specialty Co ell Sound Systems onnecticut Telephone & Electric Div Great American Industries such (S.H.) Co Inc Execution for Faradag Electric Corp Kellogg Switchboard & Supply Co Operadio Mfg Co Rauland Corp Select-O-Phone Co Div Screw Machine Products Co Spert! Faraday Inc Talk-A-Phone Mfg Co U S Instrument Corp Webster Electric Co

#### **▶ IRONERS**

Alterfer Bros Co American Ironing Machine Co Aper-Botarez Corp Armstrong Products Corp Automatic Washer Co Barlow & Seelig Mfg Co

BENDIX HOME APPLIANCES INC DIV Bros Mfg Co

CROSLEY DIV AVCO MFG CORP Frigidaire Div General Motors Corp GENERAL ELECTRIC CO APPLIANCES & MERCHANDISE DEPT Horton Mig Div Aviation Corp HOTPOINT INC

ronite Iron Co Landers Frary & Clark Maytag Co Midwest Metal Stamping Co Nineteen Hundred Corp.
NORGE DIV BORG-WARNER CORP (APPLI-ANCE DIV)

Ther Corp Victor Electric Products Co Vom Brethers Mfg Co WESTINGHOUSE ELECTRIC CORP

#### IRON, ORNAMENTAL

ARTCRAFT ORNAMENTAL 180N CO Badger Wire & Iron Works Ime Beaux Art Crafts Belikool Co Belson Mfg Co Belson Mfg Co 

METAL CHAFTERS INC Meyers (Fred L) Mfg Co Newman Brothers Inc Bock Island Millwork Co Samcoo Grusmental Iron Co Southern Wire & Iron Works Stewart Iron Works Co Inc Wiemann (Ernest) Iron Works

#### IRONS, SOLDERING

rrett (William L) Co rnz (Otto) Co Inc lloid Equipment Co Inc gle Electric Mfg Co d Equipment Co Inc Electric Mfg Co ic Soldering Iron Co on Electric Co Lenk Mfg Co STANLEY TOOLS DIV STANLEY WORKS Wange Electric Inc Wall (P) Mfg Co

## IRONS, SOLDERING, ELEC-

Everhot Mfg Co
GENERAL ELECTRIC CO APPLIANCE &
MERCHANDISE DEPT
Ideal Industries Inc Lenk Mfg Co STANLEY TOOLS DIV STANLEY WORKS

#### IRRIGATORS, SOIL

Allen (W D) Mfg Co Daniels Ross
Hastlings Canvas & Mfg Co
Iri-Gatar Mfg Co
Keystone Brass & Bubber Co
Messmer Brass Co
Scharlow Iron Products Co
Wagner Awning & Mfg Co
Wenzel (H) Tent & Duck Co

#### JACKS ADJUSTABLE, WOOD-STEEL

yer Brothers Whiting & Co Breyer Broament Corp Clay Equipment Corp Flint (A W) Co Mfg Co of Ohio Holm's Mfg Co of Oltio
M & M Wire Clamp Co
Newark Ladder & Bracket Co Inc
PATENT SCAFFOLDING CO INC
SUPEROR (N P) Co Spurgeon (N P) Co STEEL SCAFFOLDING CO INC Templeton Kenly & Co United Metal Products Inc

#### JACKS, HOUSE

American Scale Co
American Skein & Foundry Co
Berg (John) Mig Co
Buda Company
Deff-Norton Mig Co
Joyce-Cridiland Co
Spurgeon IN P) Co
Stimmel Winch Co
Swett (A L) Iron Works
Templeton Kenly & Co

#### JACKS, LADDER

American Ladder Co Babcock (W W) Co Inc

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Baser Mfg Co Breyer Brothers Whiting & Co Breyer Ladder Co arvuport Ladder Co lint (A W) Co oshen Mfg Co R & G Stamping Co cider Mfg Co olland Ladder & Mfg Co Holland Ladder & Mfg Co Hollan's Mfg Co Howard Mfg Co Hyde Mfg Co Moulton Ladder Mfg Co RICHEY MFG CO Ridgely Trimmer Co Sabin Machine Co Tilley (John 8) Ladders Co Inc Toledo Interlocking Products Wilson-Albrecht Co

#### JACKS, SLIP-FORM RAISING Duff-Norton Mfg Co.

#### **JALOUSIES**

Camemost Hardware Co Figule Equip Mig Co GATE CITY SASH & DSOR CO LUDMAN CORP Pro-Tect-U Jalousie Corp RUSSELL (F C) CO Thorn (J S) Co

#### JAMBS, PACKAGED DOOR

LONG-BELL LUMBER CO Rock Island Millwork Co

#### JIGS, BORING

CORBIN (P & F ) DIV AMERICAN HARD-WARE CORP LOCKWOOD HARDWARE MFE CO

#### JIGS, LOCK MORTISING

KWIRSET LOCKS INC NATIONAL BRASS CO Vimear Sales Co

#### JOINTERS

ATLAS PRESS CO ROCKWELL MFG CO DELTA POWER TOOL WALKER-TURNER DIV KEARNEY & TRECKER CORP

#### JOINTERS, MASON'S

Adams (C F) Inc DISSTON (HENRY) & SONS INC Economy Mfg Co GOLDBLATT TOOL CO Marshalltown Trowel Co Paine (Benjamin G)

#### JOINTERS, SAW

Atkins (E C) & Co
BBICE CRANE CO
BBICE CRANE CO
BISSTBM (HENRY) & SOMS INC
Hoston & Anderson Dir St. Paul Foundry &
Mfg Co
Oliver Machinery Co
Power (L) & Co
Power tall & Co
Powermatic Machine Co
BBCKWELL MFG CO BELTA POWER TOOL
BIT
STEAM OF COMMENT OF Stetson-Ross Machine C WALLACE (J B) & CB Vales-American Machine

#### JOINTS, EXPANSION

CAREY (PHILIP) MFG CB CECO STEEL PRODUCTS CO CELOTEX COMP FLINTKOTE CO Born (A C) Co JOHNS-MANVILLE CORP Keystone Ambalt Preducts Co Meadows (W R) Inc PITTSBURGH CORNING CORP Prestite Engineering Co PROTECTIVE PAPERS INC ST PAUL CORRUGATING CO SERVICISED PRODUCTS CORP Tuffall. Inc

#### JOINTS, METAL

Brase Mfg Co New Holland Metals Co REVNOLOS BETALS CO BUILDING PROD-UCTS DIV Simule Steel Co

### JOISTS, CONCRETE, PRECAST

#### JOISTS, STEEL

Bethlehem Steel Co CECO STEEL PRODUCTS CORP Gabriel Steel Co Haven Busch Co International Steel Co Jones & Laughlin Stee

Soule Steel Co STRAN-STEEL DIV GREAT LAKES STEEL TRUSCON STEEL CO United States Steel Co

#### KEYS, BLANK

Atlas-Ansonia Co Barrows Lock Works Clinton Lock Works Consin (F & F) DIV AMERICAN HARD-WARE CAR WARE CAR Master Lock Co

Prom Hardware Co
RUSSELL & ERWIN DIV AMERICAN MARDWARE COMP
Sager-Barrows Lock Works
Skillman Hardware Co
Skapmaker Lock Co
TECHNICAL GLASS CO INC
VALE & TOWNER MFG CO

#### **KITCHEN ACCESSORIES**

ALLIANCEWARE INC AMERICAN CABINET WARDWARE CORP AMERICAN CENTRAL DIV AVCO MFG CORP AMERICAN CENTRAL DIV AVCS MFG CORP
Autorye Co
Bache (Semon) & Co
Bache (Semon) & Co
Bache (Semon) & Co
Bache (Semon) & Co
Columbia Metal Box Co
Columbia Platal Eventre
Hallemscheid & McDonald
Hallemscheid & McDonald
Handy Things Mfg Co
Illinois Forcelain Enamel Co
IXI, Furniture Co Inc
Jamestown Metal Products Co
KUTCHE MAID COMP
KIECK CO
MITTAL CO
MITTA RTE CO
MIGNORM MEC CORP
MULLINS MEG CORP
PITTSBURGH PLATE GLASS CO
St Charles Mfg Co
Superior Household Mfg Co
TOLEDO DESK & FIXTURE CO
TRACY MFG CO
U S Lock & Hardware Co

### KITCHEN CABINET ACCESSORIES

ALLIANCEWARE INC AMERICAN CABINET HARDWARE CO AMERICAN CRITAL DIV AVCO MFG CORP Berger Mfg Co Republic Steel Corp Dedoes Machine Was Eldon Mfg Co Engineered Products Co Eldon Mfg Co
Engineered Products Co
Excel Metal Cabinet Co Inc
Fiwale Equipment Mfg Co
GETTY (N S) & CO INC
IXI. Furniture Co IXI. Furniture Co
Jamestown Metal Products Co
KITCHEN MAID CORP Knape & Vogt Mfg Co Lyon Metal Products Inc Midwest Mfg Co Midwest Ming Co.
Morgan Cuchen Cabinet Div Morton Mig Co.
MULLINS MFG CO.
MULLINS MFG CO.
Paragon Utilities Corp.
SARGENT & CO.
TOLCOD DESK A CO.
TOLCOT MINGE CO.
TOLCOT M

#### KITCHEN CABINETS, METAL

Washington Steel Products YALE & TOWNE MFG CO

Acme Metal Products Corp AMERICAN CENTRAL DIV AVCO MFG CORP ANGEL NOVELTY CO Berger Mfg Div Republic Steel Corp.

DWYER PRODUCTS CORP

Elgin Stove & Oven Div Aeme Visible Records Elbar Mfg Co
Excel Metal Cabinet Co
Frigidaire Div General Medora Chep
GENERAL ELECTRIC CO APPLIANCE &
MERCHANDISC DEPT
General Medora Kitchensi Inc
Harrison Steel Cabinet Co
NoTPollaT 18C
Hubery Bros Inc
Humphreys Mfg Co
Jamestewn, Metal Products Co
Jamestewn, Metal Products Co tal Products Co CORP
Loon Metal Products Co
MANY L. RETAL PRODUCTS CO
MANY L. RETAL PRODUCTS CO
MILLIAN METAL Products Ins
Morton Mg Co
MULLIAN METAL CORP
MULLIAN METAL CORP
Paragon Utilities Corp
Pioneet Co
Paragon Utilities Corp

Piones Co Royalmaid Kitchen Ins St Charles Mfg Co Shirley Corp Tole EDO DESK & FEXTURE CO TRACY MFG CO

United Metal Box Co UNIVERSAL-RUNDLE CORP Western Metalcraft Inc Whitehead Metal Prods Co Inc

#### KITCHEN CABINETS, WOOD

Bel-Wood Mfg Co Boro Wood Co Boro Wood Products Co Ins Burke Millwork Co Cameron (Wm) & Co Inc CARR ADAMS & COLLIER CO Cole Mfg Co CURTIS COMPANIES INC Davis Plywood Corp Del-Mar Cabinet Co Inc Dyke Brothers Farley & Loetscher Mfg Co Proc. Brethers
Farly & Leetscher Mg CuGannon Mg Co
General Wood Works
GEGG & Soft
GEGG & Soft
Huttle Mfc Co
Huttle Mfc Co
Huttle Sash & Door Co
Huttle Mfc Co
Huttle Mfc Co
Huttle Sash & Door Co
Kinzina Pine Mills Co
Ki Kraus (Walter 8) Co L & M Mfg Co Long-Bell Lumber Co Marquart Millwork Co Mengel Co INC Morgan Co Morgan Co Morgan Sanh & Door Co Mutachler Brothers Pioneer Co Rock Island Millwork Co Slosswood Inc Spokane Sash & Door Co Sterling Freeland Industries Inc

#### KITCHENS, UNIT

DWYER PRODUCTS CO Frost Studies Sales Co GENERAL AIR CONDITIONING CORP GENERAL ELECTRIC CO MOTPOINT INC Hubens Brothers Inc MURPHY DOOR BED CO Woodmetal Industries Inc

#### **KITCHEN VENTILATING** SGOOH

Badger Cornigating Co FAWSCO MFG DIV FALL STAMPING & WELDING CO ROBERTS MFG CO St Anthony Corp Universal Blover Co Vent-A-Hood Co

#### KITS, HOME PLANNING

Hom-O-graf Planner Inc Planitect Co

#### KITS, MODELMAKING

American Model Railroad Co Inc Berkeley Models Inc Harcourt Co Rafecuri Corp Lionel Corp Bosa Chemical & Mfg Co Scale-Models Scientific Model Airplane Co

### NIVES, FIBER BOARD

BLACK & DECKER MFG CO Kimball Mfg Co Inc SELCK (WALTER E) & CO STANLEY WORKS

#### KNIVES, HIGH SPEED

Atkins (E C) & Co DISSTON (HENRY) & SONS INC Ekstrom Carlson & Co Ekstrom Carlson & Co Hanchett Mfg Co Hoe (R) & Co Inc Huther Brothers Saw Mfg Co Inc Oliver Machinery Co Oliver Machine, Taylor-Stiles & Co Woods (S A) Machine Co

American Rolle Co
Atkins (E C) & Co
DISSTON (HENRY) & SONS INC
Hoe (E) & Co Inc
Holmes (E & B) Machinery Co
Huther Brothers Saw Mfg Co Inc Huther Brothers Saw Mrg Co Mitts & Merrill Oliver Machinery Co SIMONDS SAW & STEEL CO Taylor Stiles & Co Woods (S A) Machine Co

#### NIVES, PUTTY, ROOFING, LINOLEUM

Barrett (W L) Co Black Panther Tool Co Bridgeport Hardware Mfg Curp B & T METALS CO Clyde Cutlery Co
Edwards Mfg Co
FASTEMER GORF
FASTEMER GORF
FASTEMER GORF
GLENCHT TOOL Mfg Co
GLENCHT TOOL Mfg Co
GLENCHT TOOL CO
Handy Things Mfg Co
Hyde Mfg Co
Kler-Vue Knife Rack Co Ine
Lammer A Goodnew Mfg Co Lamson & Goodnew Mfg Co Landers Frary & Clark Lehon Co Lehon Co MACKLANBURG-BUNEAN CO Metal Trims Inc Modern Specialties Co Murray-Black Co Parker (Ira) & Sons Co PITTSBURGH PLATE GLASS CO RED DEVIL TOBLE Ridgely Trimmer RED DEVIL TOOLS
Ridgely Trimmer Co
Robeson Cutlery Co Ine
Russell Harrington Cutlery Co
Sandvik Saw & Tool Corp
Schrade (George) Schrade (George)
Seal Rite Caulking Co Ine
SELCK (WALTER E) & CO
SOUTHINGTON Hardware Mfg Co
S & W Moulding Co
Taylor-Skiles & Co
Tuck Mfg Co
Warner Mfg Co
Williams Products Co Ine
Youngstown Mfg Ine

#### KNIVES, VENEER

Atkins (E C) & Co DISSTON (HENRY) & SONS INC Hoe (R) & Co Inc SIMONDS SAW & STEEL CO

#### LACERS, BELT

Chicago Belting Co Clipper Relt Lacer Co Flexible Steel Lacing Co Haiss (Geo) Mfg Co Div Pettibone Mulliken Corp Schieren (Chas A) Co Union Rubber & Asbestos Co Webb Belting Co

#### LACING, BELT

Armstrong-Bray & Co Bristol Co Caldwell Lace Leather Co Flexible Steel Lacing Co

#### LACQUER

Acres White East & Color Works
Alabastine Paint Products Div Chicago
Brooms & Color Works
American Marietta Co
American Marietta Co
American Warnish Co
Revining Brothers Inc.
Chicago Broune & Color Works Revision of the Color Works Bereing Brothers Inc Chicago Brouze & Color Works Deere & Raymolds Co Inc Du Prost (£ 1) do Nemoure & Co Inc Du Prost (£ 1) do Nemoure & Co Inc Glidden Co Grand Rapide Varnish Corp Horn (A C) Co Inc Locas (Swhin & Co Locas (Swhin & Co Locas (Swhin & Co Mobile Paint Mig Co Mobile Paint Mig Co Mobile Paint Mig Co Mobile Paint Mig Co O'Rrice Corp Patternon Sattent Co Patterson Sargent Co PITTSBURGH PLAYE GLASS CO Pill 138086 brita and the Sherwin-Williams Co Standard Industrial Products Ice Standard Variab Works Steelecte Mig Co U S PLYW000 CORP Valentine & Co Inc Woodfinishing Products Co

#### LADDER ACCESSORIES

Breyer Bros Whiting & Co Dayton Safety Ladder Co Duo-Safety Ladder Corp Holmes Mfg Co of Ohio Michigan Ladder Co. Michigan Ladder Co PATENT SCAFFOLDING CO INC RED DEVIL TOOLS Safety Equipment Service Co STEEL SCAFFOLDING CO INC WAGNER NFG CO

### LADDER, STEPS, SAFETY

Campbell (A S) Co Inc O'Neil (Carl W) Associates Inc

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### LADDERS, ALUMINUM

Aluminum Ladder Co American Ladder Co Chesley Industries Inc Werner (R D) Co Wilson-Albrecht Co

#### LADDERS, STEEL

Arvis Mfg Co Ballymore Co Chesley Industries Inc Fiwale Equipment Mfg Co International Steel Co International bases to Logan Co Newark Ladder and Bracket Co Inc PATENT SCAFFOLDING CO INC Precision Equipment Co Werner (B D) Co

#### LADDERS, WOOD, ALL TYPES

American Ladder Co Babcock (W W) Co Bauer Mfg Co Allocock (W W) Co
Ballocock (W W)
Ballocock (W W)
Ballocock
Ber & Company Inc
Berg (John) Mfg Co
Breyer Brothers Whiting Co
Craft - MB, Inc
Craft - MB, Inc
Craft - MB, Inc
Brothers Whiting Co
Craft - MB, Inc
Craft - MB, Inc
Brothers Whiting Co
Craft - MB, Inc
Brothers Whiting Co
Craft - MB, Inc
Brothers W, Inc
Brothers W, Inc
Brothers Co
Coshen Mfg Co
Coshen Churn & Ladder Co
Coshen Mfg Co
Coshen (Harry A) & Bon
Reider (W C) & Co oreen thary A & DOB
Helder Mig Co
Helder Mig Co
Holland Ladder & Mig Co
Holland Ladder & Mig Co
Howard Mig Co
Low Ampeles Ladder Co
Low Ampeles Ladder Co
Low Ampeles Ladder Co
Minnesota Wood Specialties
Moutlon Ladder & Mig Co
Newark Ladder & Mig Co
Newark Ladder & Rendert Co
Newark Ladder ity Co Bich (Howard B)
Rich Ladder & Mfg Co
RICHARDS-WILCOX MFG CO
RICHARDS-WILCOX MFG CO
RICHARDS-WILCOX MFG CO
RICHARDS-WILCOX MFG CO
Tacoma Lumber Fabricating Co
Tacoma Lumber Fabricating Co
Topping Ladder Co
Willamette Valley Lumber Co
Willamette Valley Lumber Co
Woodenware Products Corp
Young (J 0) Co
Zone Ladder & Mfg Co

D LAMPS, BACTERICIDAL
GENERAL ELECTRIC CO LAMP DEPT
Sylvania Electric Products Inc
WESTINGHOUSE ELECTRIC CORP LAMP
BIV

#### LAMPS, FLUORESCENT

GENERAL ELECTRIC CO LAMP DEPY Sylvania Electric Products Inc WESTINGHOUSE ELECTRIC CORP LAMP DIV

LAMPS, INCANDESCENT Lightmore Appliance Corp Pennsylvania Illuminating Corp Safety Electric Co Silvray Lighting Inc Sylvania Electric Products Inc Verd-A-Ray Corp WESTINGHOUSE ELECTRIC CORP LAMP

#### LAMPS & LANTERNS, CAMP

COLEMAN CO INC Cupples Co Dewar Mfg Co Dietz (R E) Co Erco Mfg Co Ereo Mfg Co Faries Mfg Co Guth (Edwin F) Co Justrite Mfg Co Justific Mig. Co
Martle Lamp Co of America
Martle Lamp Co of America
Mill of Obert E) & Co Inc
National Stamping & Electric Works
Overmore-Perram Glass Co
Parafeer (Charles) Co
Samcoe (Wm J) Iron Co
Stewart Iron Works Co Inc
Swain & Bridge

### LANTERNS, ORNAMENTAL

Stewart Iron Works Co Inc

#### **LATCHES**

Champion Hardware Co
Clinton Lock Co
CHREIN (P & F) DIV AMERICAN HARDWARE CORP. Duncan Shaw Corp HAGER (C) & SON HINGE CO

Ideal Brass Works Knape & Vogt Mfg Co LOCKWOOD HARDWARE MFG CO NATIONAL LOCK CO Parlyn Ltd Penn Hardware Co Sager-Barrows Lock Works Skillman Hardware Co TECHNICAL GLASS CO INC WAGNER MFG CO

LATCHES, GATE

Barrows Lock Works
Clinton Lock Co
CORBIN (P & F) DIV AMERICAN HARDWARE CORP
Figale Facility ent Mfg Co Fiwale Equipment Mfg Co FRANTZ MFG CO HAGER (C) & SONS HINGE MFG CO Ideal Brans Works Inc Kees (F D) Mfg Co LOCKWOOD HARDWARE MFG CO NATIONAL BRASS CO NATIONAL MFG CO Norwalk Lock Co
Reading Hardware Corp
RUSSELL & ERWIN 61V AMERICAN HARDWARE CORP
SARGENT & CO
Sharon Hardware Mfg Co
Slaymaker Lock Co Standard Bronze Co STANLEY WORKS Starline Inc Wrightsville Hardware Co

#### LATCHES, MAGNETIC FOR CUPBOARD DOORS

LABORATORY EQUIPMENT CORP

#### LATH, COMPOSITION OR KEY

JOHNS-MANVILLE CORP

#### LATH, GYPSUM

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP Grand Rapids Plaster Co NATIONAL GYPSUM CO Schumacher Wall Board Corp U S Gypsum Co

LATH, INSULATING

ARMSTRONG CORK CO BUILDING MA-TERIALS DIV CELOTEX CORP CERTAIN-TEED PRODUCTS CORP CENTAIN-TEED PRODUCTS CORP FI-Ter Insulating Boar Co FILMTKOTE CO HISTORY CONTROL OF THE CONTROL PAPER CO JOHNS-MARVILLE CORP Keystone Applait Products Co NATIONAL CYPSUM CO FIRMTON Wall Board Co FIRMTON WAIL BOAR CO FIRMTON CONTROL CO WOOD CONVERSION CO

#### LATH, METAL

Alabama Metal Lath Co Allen Steel Products Aluminus Inc
Borger Mig Dir Bepublic Steel Corp
BOSYWICK STEEL LATW CO
BOSYWICK STEEL LATW CO
BOSYWICK STEEL LATW CO
GOIGHOUTH METAL LATW CO
MILAND STEEL PRODUCTS CO
MATIBAL CYPSUM CO
MATIBAL CYPSUM CO
MATIBAL CYPSUM CO
MATIBAL CORPSUM CO
MATIBAL CORPSUM
STEEL PRODUCTS CO
METALS CO BUILDING PRODUCTS OV
ST PAUL CORPUGATING CO
SCALOR PRODUCTA INC Soule Steel Co TRUSCON STEEL CO U S Gypsum Co Wheeling Corrugating Co Wickwire Spencer Steel Div Colorado Fuel & Iron Corp

#### LATH, WOOD

Anaconda Copper Mining Co Angelina County Lumber Co Cascade Lumber Co
CONNOB LUMBER & LAND CO
CROSSETT LUMBER CO
Dismond Match Co
Dismond Match Co
Dismond Match Co
Ficiabel Lumber Co
Fordyce Lumber Co
Fordyce Lumber Co
Kinzua Pine Mills Co
LUMBER CO Rainy Lake Lumber Co Lill RODDIS PLYWOOD CORP St. Paul & Tacoma Limber WEYERHAEUSER SALES CO

#### **LATHES**

ATLAS PRESS CO BOCKWELL HEG CO DELTA POWER TOOL | LIGHTING, PLANTS WALLACE (J B) & CO WHITNEY (BAXTER D) & SON INC.

#### LATHES, HOME WORKSHOP

Arende Mfg Co Div Rockwell Mfg Co Blount (J G) Co BOICE-CRANE CO eston & As Power King Tool Corp
ROCKWELL MFG CO DELTA POWER TOOL Bend Lathe Works Toolkraft Corp
WALKER-TURNER DIV KEARNEYTRECKER INC
WALLACE (J D) & CO
Tates-American Machine Co

#### LATHING, SUSPENDED CEIL-ING SYSTEMS

ARMSTRONG CORK CO BUILDING MA-TERIALS DIV PITTSBURGH STEEL PRODUCTS CO

#### LAVATORIES, CABINETS

Rennett Mfg Co FORMICA CO IDEAL CABINET CO Standard Steel Cabinet Co TOLEDO DESK & FIXTURE CO

#### LEAD, RED

American Varnish Co Berry Brothers Inc Breinig Brothers Inc Burdsal (A) Co
Devoe & Raynolds Co Inc
Eagle-Picher Co Eagle-Picher Co General Paint Corp Glidden Co Glidden Co Hammond Lead Products Inc National Lead Co Peaslec-Gaulbert Paint & Varnish Co Shewin-Williams Co Twentieth Century Paint & Varnish Corp Vita-Var Corp

#### LEAD, WHITE

Arms White Lead & Color Works
American Variais to
Anaconda Sales to
Deve & Raynolds Co Inc
Du Pont (E I) de Nemours & Co Inc
Eagle-Picher to
Felton Sibley & Co Inc
Filler (W P) & Co Inc
Gilleeple Varnish Co
Gildden Co. Gillesple Varnish Co Gilden Co Holoken White Lead & Color Works Inland White Lead Co National Lead Co PITTSBUNGH PLATE GLASS CO Steelcote Mfg Co Twentieth Century Paint & Varnish Corp

#### LEVELING, WALL, MATERI-ALS FOR

Reardon Co Tamma Industries Inc.

#### LEVELS, CARPENTER'S MASON'S

BOSTROM BRADY MFG CO Brunson Instrument Co
DISSTON (HEMRY) & SONS INC
Empire Level Mfg Co
GOLDBLATY TOOL CO
GRAMM (John H) & Co Inc
Hall Level & Mfg Works
Hartwheed Bali Level & Mig Works
Hydrolevel
International Mfg Co
Mayes Brothers Tool Mfg Co
Millers Falls Co
Ox-Wall Tool Co
Peerless Level & Tool Co
Schaff (J H) Mfg Co
Schaff (J H) Mfg Co Schultes Level Inc Singer-Kennedy Corp STANLEY TOOL DIV STANLEY WORKS Starrett (L S) Co

#### LIFTS, LUMBER

Drott Mfg Corp

Rotary Lift Co Silent Hoist & Crane Co Inc Standard Dry Kiln Co

ALLIS-CHALMERS MFG CO Benjamin Electric Mfg Co Briggs & Stratton Corp Buds Co Buda Co CONSTRUCTION MACHINERY SALES CO Continental Motors Corp
DELLO APPLIANCE DIV GENERAL MOTORS
SALES CORP
Eagle Electric Mfg Co Inc
Fairbanks Morre & Co
GENERAL ELECTRIC CO APPARATUS DEPT Guth (Edwin F) Co
HOMELITE CORP
Johnson Motors Div Outboard Marine & Mfg
Co
Co
Engineering Co

Co
KONLER CO
HONLER CO
HONN (D W) & Sons
Phelps Power & Light Co
Pioneer Gen-E-Motor Cot
Beady-Power Co Universal Motor Co WESTINGHOUSE ELECTRIC CORP Wincharger Corp Wind (Jacob) Electric Co Inc Winpower Mfg Co

#### LIGHTS, FLUORESCENT

Bryant Electric Co Cupples Co Curtis Lighting Inc Eagle Electric Mfg Co Inc. Guth (Edwin F) Co Long (W H) Co Metalcraft Screen Co MIAMI CABINET DIV PHILIP CAREY MFG

erior Plastics Div Commonwealth Plastics

#### LIGHTS, NIGHT

WESTINGHOUSE ELECTRIC CORP lamilton Beach Co Div Scovill Mfg Co

LIGHTS, SPOT & FLOOD
GENERAL ELECTRIC CO APPARATUS DEPT Pyle-National Co WESTINGHOUSE ELECTRIC CORP

#### LIME, FINISHING

CELOTEX COMP CERTAIN-TEED PRODUCTS COMP Fairmont Wall Plaster Co Gibsonburg Lime Products Co Kelley Island Lime & Transpot Keystone Lime Work Inc LOUISVILLE CEMENT CO INC Marblebead Lime Co mort Co Marblebead Lime Co Mission Lime Producta Corp MATIONAL GYPSUM CO National Lime & Stone Co National Mortar & Supply Co Ohio Hydrate & Supply Co Otandard Lime & Stone Co If S Gypsum Co U S Gypsum Co
Washington Brick & Lime Co
Western Lime & Cement Co
Woodville Lime Co

#### LIME, HYDRATED

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP Chicago Vire Brick Co Corson (G & W H) Inc Gibsonburg Lime Products Co Kelley Island Lime & Transport Co Keystone Lime Works Inc LOUISVILLE CEMENT CO INC Marbleboad Lime Co Marblebead Lime Co
Mission Lime Froducts Corp
NATIONAL GYPSUM CO
NATIONAL Lime & Stone Co
NATIONAL Lime & Stone Co
NATIONAL Lime & Stone Co
Riverton Lime & Stone Co
Riverton Lime & Stone Co
I S Gymun Co
I S Gymun Co
I S Gymun Co
Westlington Briefs & Lime Co
Woodrijle Lime Co

#### LIME, MASON'S

Carney Co Inc
CERTAIN-TEED PRODUCTS CORP
Gibonoburg Lime Products Co
Kelley Island Lime & Transport Co
Keystone Lime Works Inc
LOUISVILLE CEMENT CO INC LOUISVILLE CEMENT CO INC MATDICHEM LIME CO MATOMAL GYPSUM CO NATIONAL GYPSUM CO NOTE AMERICAN COMPANY ONLY MATTER AUDITY CO RIVETON LIME & STONE CO RIVETON LIME & STONE CO LI S Gypsum CO Warner Co Warner Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### LIME, PEBBLE

Keller Island Lime & Transport Co LOUISVILLE CEMENT CO INC Mission Lime Products Corp NATIONAL GYPSUM CO

#### LIME, QUICK

Corson (G & W H) Inc Gibsonburg Lime Products Co Kelley Island Lime & Transport LOUISVILLE CEMENT CO INC matisticean Lime Co
Mission Lime Products Corp
RATIONAL CYPSUM CO
NATIONAL CYPSUM CO
NATIONAL LIME & Stone Co
NATIONAL LIME & Stone Co
NATIONAL LIME & Stone Co
Standard Lime & Stone Co
U S Groum Co
Western Lime & Cement Co
Woodville Lime Co

#### LINING, CLOSET, CEDAR

Actna Plywood & Veneer Co BRADLEY LUMBER CO OF ARK ROWN (CERRCE C) & CO INC BRUCE (E L) CO BRUCE (E L) CO CCDAR-LUX PRODUCTS CO INC Coddington (E D) MTg Co Frontyce-Crossett Lumber Co Frontyce-Crossett Lumber Co Rese Products Co Rustic Furniture Co Inc Trimu Co Inc Trimz Co Inc
Twin City Hardwood Lumber Co
WEYERHAEUSER SALES CO

#### LINING, FLUE Aeme Brick Co

liance Clay Products Co nerican Vitrified Products Co Bowerston Shale Co Cannelton Sewer Pipe Co Chicago Fire Brick Co CONDENSATION ENGINEERING CONDENSATION ENGINEERING CONDENCE CONDENSATION CONDENSATIO CONDENSATION ENGINEERING CORP

#### LINOLEUM

ARMSTRONG CORK CO BIRD & SOM INC CONGOLEUM-NAIRN INC heo Products Inc. sanc-Bishon Corp.

#### LINTELS, STEEL

BENNETT-IRELAND INC Berger Mfg Div Bepublic Steel of Consolidated Iron-Steel Mfg Co Donley Brothers Co Captel Steel Co Donley Brothers Co Garriel Steel, Co MAILESTIC CO MAILESTIC CO FREET HEFLAGE MEATER & TANK SEELCRAFT WFG CO SUPERIOR FREEFLAGE CO TRUSCOM STEEL CO VENTO STEEL PRODUCTS CO INC

#### LOADERS, BUCKET

rber-Greene Co Brady Conveyors Corp Fairfield Engineering Co Haim (George) Mfg Co Div Pettihone Mul-liken Corp Hyster Co JAEGER MACHINE CO Link-Belt Co Little Giant Products Ins Markroy Co Nelson (N P) Iron Works

#### LOADERS, COAL

Barber-Greene Co Brady Conveyors Corp Fairfield Engineering Co Farquhar (A B) Co Haiss (George) Mfg Co Div Pettibone Mul-ilken Corp

DEXTER LOCK CO
DECEMBER OF THE CO
DUCAN BRAW COP
EARLE HARDWAYE MY
CO
EATH HARDWAYE MY
CO
EATH HARDWAYE MY
CO
EATH HARDWAYE MY
CO
EATH HARDWAYE
FRANTZ MY
CO
GENERO TOOL DIV GENERAL STEEL WAYEBOUSE CO
HARDE MY
CO
HARDE PROBLEMS COP

DEXTERNATION OF THE CO
EATH O

Peabody Co Inc. Penn Hardware Co.

Penn Bardware Co
Petbo Industries
Brading Hardware Corp
Breating Hardware Corp
Bress Padinck CO MFG CO
RICHARDS-WILCOX MFG CO
RICHARDS-WILCOX MFG CO
RICHARDS-WILCOX MFG CO
RICHARDS-WILCOX MFG CO
Rager Farrows Lock Works
SARGENT & CO
SCHILAGE LOCK CO
Regal Lock & Hardware Co
Regal Lock & Hardware Co
Regal Lock & Hardware Co
SIMMAGE LOCK CO
SIMMAGE AND CO
RESIDENCE CO
REGAL CO
RE STABLEY WORKS
ITERLING HARDWARE MFG CO
uperior Plantics Die Commonwealth Plastics

Taylor Lock Co TECHNICAL GLASS CO INC WESTWOOD MFG CO YALE & TOWNE MFG CO

D LOCKS, PADLOCK
Bente & Call
Best Universal Lech Co
CONGRIM (F & F) DIV AMERICAN HARD-WALE CORP. old Inc ey Lock Corp a Lock Co Dodder Leck Corp
Ragio Leck Co
Finale Resignment Mfg Co
Gengler (C L) Co Lock Div
Gengler (C L) Co Lock Div
Independent Lock Co
Johnson Fare Box Co
LGCKWOOD HARDWARE HFG CO
Norwalk Lock Co Div Segal Lock & Barbware
Co. (A) Methodon Co.

Manufacturers' Names and A

HEATILATOR INC
SHEPLER NFG CO

LOUVRES
CHELSER FAN & BLOWER CO
Krauer-Edged Inc
HIAMI CABIRET DIV CAREY (PHILIP)
RFG CO
Midder Learner Co
Red Chil-Fami Loc

LOUVE

Harris Inc.
Harris Arex Co
Bader Cortugating Co
BOSTWHCK STEEL LATH CB
CARR ADAMS & COLLIER CO
CECO STEEL PRODUCTS COMP
Compo Mizzele Products
CURTIS COS NOC Harris Inc
Hemphill (A D) Co
Holm's Mig Co of Ohio
Home Comfort Mig Co.
NOUGH SWADE CORP MAUGE SHADE CORP
Ideal Co
Illinois Zinc SMEPLER MFG CB Standard Steel Cabir inet Co Standard Steel Cabine Swartwout Co t's Gypsum Co Vincar Sales Co Webb Mfg Co Wollaeger Steel Corp

### LOUVRES, ROUND

Midget Lourer Co Rock Island Millwork Co Webb Mfg Co

Manufacturers' Names and Addresses Start on Page D-76 Parker (8) Hardware Co Manufacturers' Rames and Addresses Start on Page D-76

MUSSELL & ERWIN DIV AMERICAN HARDMARE CORP.

MARE CORP.

JAEGER MACHINE CO
LIII MIG CO
SARGERS
SARGERS FAIR (9 L) LUBRIE CO
FAITE! LAUMPET CO
FAITH LAUMPET CO
FAITH LAUMPET CO
FISHER Brothers Lumber CO
FISHER Brothers Lumber CO
FISHER AVOID LUMBER CO
FISHER COMMITTEE
FOR FAITH LUMBER CO
FUTON BRAND MILL CO
FUTON BRAND
FUTON Gaines Hardwood Lumber Co
Georgia-Pacific Pirroud & Lumber Co
Georgia-Pacific Pirroud & Lumber Co
Georgia-Pacific Pirroud & Lumber Co
Georgia-Pacific Pirroud
Georgia-Pacific Pirroud
Georgia Co
Georgia Chemical Co
Hall United Co
Hall United Co
Hall United Co
Hall United Co
Hardwood Copp of America
Hard-Thompson Lumber Co
Hardwood Copp of America
Hard-Thompson Lumber Co
Hardwood Copp of America
Hard-Thompson Lumber Co
Holts Hardwood Co
Holts Co
Holts Hardwood Co
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Hardwood C
Har MENGEL CO MENGEL CO Mills MERGEL COMMERCE
MERGEL COMMERCE
Menunine Indian Mills
Menunine Indian Mills
Menunine Indian Mills
Melistan Pole Block for
Mullard Rebets for
Mullard Rebets for
Miller & Tie Co
Mullard Valley Lumber to
Miller & Co Ine
Mortan Gross & Co
Morrison Gross & Co
Mor

Parnell Lumber Co
Patton (Frank) Lumber Co
Patton (Frank) Lumber Co
Patton (Frank) Lumber Co
Pine Plume Lumber Co
Pine Plume Lumber Co
Plume (Frank)
Plume Comber Correlated Colored
Post (Frank)
Patton Southern Lumber Co.
Southern Mar Lumber Co.
Southern Mar Lumber Co.
Southern Mar Lumber Co.
Southern Mar Lumber Co.
Stearns Coal & Lumber Co.
Studies Lumber Co.
Studies Sawmill Co. Inc.
Studies Sawmill Co.
Texplor & Newcomb Inc.
Texplor & Newcomb Inc.
Texplor & Newcomb Inc.
Texplor & Sewcomb Inc.
Texplor & Sewcomb Inc.
Texplor & Newcomb Inc.
Texplor & Sewcomb Inc.
Texplor & Sewcomb Inc.
Texplor & Sewcomb Inc.
Texplor & Newcomb Inc.
Texplor & Newcomb Inc.
Texplor & Sewcomb Inc.
Texplor & Newcomb Inc.
Texplo Wallrich (M Ward Lumber Warner Lumber Co
Was Lamber Co
Webster (H E) Lumber Co G Ala
Weils Li Wi Lumber Co of Ala
Weils Li Wi Lumber Co
Weils Co Williams Co
Williams Rownell Inc
Williams & Work Markoud Co
Williams & Vorts Markoud Co
Williams & Vorts Markoud Co
Williams & Vorts Saw Mill Co
Williams & Vorts Saw Mill Co
Williams & Waller Buwer Co
Winter-Underhill & Co
Youngerman-Reynolds Lumber Co
Youngerman-Reynolds Lumber Co Warner Lumber Co Wax Lumber Co

#### LUMBER, BIRCH

P LUMBER, BIRCH
Adirondask Core & Plug Co
Abnene Lumber Co
Atlanta Gas Flooring Co
Atlantic Lember Co
Atlantic Lember Co
Atlantic Lember Co
Bagnal (t. No
Bag de Noupet Co
Becleber (J B)
Bemis Hardwood Lumber Co
Bookin-Madison Lumber Co
Bookin-Mad nd Lumber Co Bowlet Lumber Co
Braund Harman Co
Braund W R) Co
Braund W R) Co
Brown (D D)
Burt (C E & F D) Co
Codiliae-Soo Lumber Co
Christianes (C M) Co
Consauga River Lumber Co
Consauga River Lumber Co
Consauga River Lumber Co
Confer Lumber Mills
COMMON LUMBER & LAND CO
COOPE-Smill Lumber Co Confer Lumber Mills
CONNOR LIBBER & LAND CO
CONNOR LIBBER & CO
COPELAN EL MINER CO
COPELAN EL MINER CO
COPELAN EL MINER CO
COPELAN EL MINER CO
CITO & Hallon
Crisp (M E) Lumber Co
Elitott Hardwood Co
Elitott Hardwood Co
Emportum Forestry Co
Endearor Lumber Co
Engrerium Forestry Co
Endearor Lumber Co
Farrell Lumber Co
Farrell Lumber Co
Farrell Lumber Co
Fort (Abbott) Lumber Co
Gennett Lumber Co
Hardwood Cop of America
Hawley Lumber Co
Hardwood Cop of America
Hawley Lumber Co
Hott Hardwood Co
Hott Hardwood Co
Hott Hardwood Co
Hott Hardwood Co
Hotter Mountain Coal & Lumber Co
Johnson Lumber Co Inter-Mountain Coal & I Janquet Lumber Co Johnson Lumber Co Inc Kennett Co Knoke Lumber Co Marshall Lumber Co Mason (A) & Sons Inc

McCulloch Lumber Co
Meadow River Lumber Go
Memontinee Indian Millia
Mchilgam Maple Block Co
Michigan Pule & Tie Co
Millier Brothers Co
Monteath CJ H1 Co
Monteath CJ Co
Monteath CJ Co
Monteath CJ Co
Parlor & Steams
Lumber Co
Patient & Steams
Lumber Co
Plumly (P W) Lumber Cop
Plumly (P W) Lumber Cop
Plumly (P W) Lumber Cop
Plumlett-Wester Lumber Co
BROOM STEAMS
RESTREET Lumber Co
BROOM STEAMS
RESTREET
RESTREET Rass (Warrey Lumber Co Saco Lumber Co Inc Schreiber (Win C) Lumber Co Schreiber Rothers Lumber Co Schreiber (Win C) Lumber Co Schreiber (Win C) Lumber Co Schreiber (Orp. Sissguebanna Chemical Corp. Underwood Vener Co Vestal Lumber & Mige Co Vestal Lumber & Mige Co Ward Lumber Co Ward Lumber Co Ward Lumber Co Ward Lumber Co West Wigginia Lumber Co West Wigginia Lumber Co West Wigginia Lumber Co White Biver Timber Co
WILLIAMS. BROWNELL INC
Wistar Underhill & Co
Wright (3 Walter) Lumber Co
Yawkey-Bissell Corp

#### LUMBER, CEDAR, RED, WESTERN

Adar Los Al Lumber Co
Angels Rox & Limber Co
Benson Lumber Co
Calder Linther Co
Calder Linther Co
Calder Linther Co
Calder Linther Co
Cooper (W E) Wholesale Lumber Co
Cooper (W E) Wholesale Lumber Co
Cooper (W E) Wholesale Lumber Co
Doley Lumber Co
Edipade Romer Co
Edipade Lumber Co
Ferguson (W T) Lumber Co
Giustina Brothers Lumber Co
Gray (Robert) Shingle Co
Gray (Robert) West Waterway Lumber Co WEYERWAEUSER SALES CO Willamette Valley Lumber Co Willapa Harbor Lumber Mills Williams & Voris Lumber Co

Wilson (David) Lumber Co Winton Lumber Sales Co Woodward Lumber Co

#### **LUMBER, CYPRESS**

Adams (S B) Lumber to Tue
Adams (S B) Lumber to Tue
Anderson-Tully Co
Angelins Hardwood Sales Co
Argent Lumber Co
Balencet Co
Catter Lumber Co
Catter SW T) & Brothers
Cattley Lumber Co
Catter Sumber Co
Catter S CRUSSETT LUBBER CO
CUMMEN SOMS Cypens CO
DACUS LUMBER CO
EVERNING SAME SAIGS CO
FORDER TO THE STATE SAIGS CO
FORDER TO THE STATE SAIGS CO
FORDER TO THE SAIGS CO
FORDER TO THE SAIGS CO
GOOD TO THE SAIGS
GOOD T Rinclair Lumber Co Inc.
Smith Lumber Co
Smith Lumber Co
Smith (W T) Lumber Co
Smith (W T) Lumber Co
South Atlantic Lumber Co
South Atlantic Lumber Co
Souther Lumber Co
Souther Lumber Co
Souther Lumber Co
State (Life S)
Souther Lumber Co
Stevart (E A) Lumber Co
Temple Lumber Co
Temple Lumber Co
Temple Lumber Co
Trains Lumber Co
Wallin Lumber Co
Wallin Lumber Co
Wells (J W) Lumber Co
Wells (J W) Lumber Co
Welser Lumber Co
Woods Lumber Co
Woods Lumber Co
Youngerman-Reynolds Lumber Co
Youngerman-Reynolds Lumber Co
Youngerman-Reynolds Lumber Co

#### LUMBER, FIR, DOUGLAS

Adair (Jos. A) Lamber Co
Adri-King Mfg Corp
Alra-King Mfg Corp
Alra-King Mfg Corp
Alra-King Mfg Corp
Anaconda Copper Mining Co
Anaconda Copper Mining Co
Anaconda Copper Mining Co
Beason Lamber Co
Beason Lamber Co
Beason Lamber Co
Blies Mountain Mills
Booth-Kelly Lumber Co
Bridge Lumber Co
Caldor Lumber Co
Candada Parest Products Ltd
Canadian Perest Products Ltd
Canadian Perest Products Ltd
Canadian Western Lumber Co
Canadian Mills
Co
Canadian Lumber Co
Caractan Lumber Co
Cascade Pacific Lumber Co
Cacade Pacific Lumber Co
Cacade Pacific Lumber Co
College Valley Lumber Co
College Valley Lumber Co
College Valley Lumber Co
College Valley Lumber Co
Condort George No Lumber Co
Condort George No Lumber Co
Condort George No Lumber Co
Control Lumber Co
Control Lumber Co
Cortal Sultmber Co
Cortal Sultmber Co
Cortal Sultmber Co
Davis Sales Associated
Delian (Bobert) Co
Duding (Bobert) Co
Duding (Bobert) Co
Duding Lumber C Adair (Jos A) Lumber Co Air-King Mfg Corp Inspect Lumber Co
Eclipse Lumber Co
Eveluage Sawmills Sales Co
Eveluage Sawmills Sales Co
Fischer Lumber Co
Fischer Lumber Co
Fischer Lumber Co
Fischer Lumber Co
Gimtina Brothers Lumber Co
Gray Roberts Shingle Co
Gray Roberts Shingle Co
Gray Roberts Shingle Co
Gray Roberts Shingle Co
Gray Robert Shingle Co
Hines (Edward) Lumber Co
Hines (Edward) Lumber Co
International Timber Products Inc
Internata Lumber Co
Karlen-Davis Co
Karlen-Davis Co
Kennog't I G) Lumber Co
Kenton't I G)
Kenton't I

Ringaley Lumber Co
Ringas Pine Miths Corp
Kinnas Pine Miths Corp
Kinnas Pine Miths Corp
Kindson & Mereer Lumber Co
Ringal Lumber Co
Mithigan Call Corp
Mithigan Call Corp
Mithigan Call Form Lumber Co
Michigan Call Form Lumber Co
Miller (Goorge E) Lumber Co
Morrill & Sturgeon Lumber Co
Morrill & Sturgeon Lumber Co
Morrill & Sturgeon Lumber Co
Miller (Goorge E) Lumber Co
Morrill & Sturgeon Lumber Co
Miller (Goorge E) Lumber Co
Norther Co
Miller (Goorge E) Lumber Co
Norther Redwood Lumber Co
Norther Redwood Lumber Co
Ochooo Lumber Co
Ochooo Lumber Co
Ochoo Lumber Co
Ochoo Lumber Co
Ochoo Lumber Co
Pealus Harbor Lumber Co
Pealus Histon Lumber Co
Roseburg Lumber Co
Roseburg Lumber Co
Roseburg Lumber Co
Roseburg Lumber Co
Schemitt E Withers Co
Schemitt E Member Co
Schemitte Lumber Co
Sche Shevilla-McCloud Lumber Co
Silbernagel (George J.) & Sons Co
Southern Chapter Co
Southern Gregon Sugar Pine Co
Southern Co
Station (G.) The Sons
Station (G.) The Sons
Station (G.) The Co
Stokes Lumber Co
Southern Lumber Co
Southern Lumber Co
Southern Empire Co
Tacons Export Lumber Co
Tacons Export Lumber Co
Traft Webster & Johnson Ine
Tuntron Lumber Co
Traft Comber Co
Traft Comber Co
Traft Lumber Co Trio Lumber Co Twin Feather Mills Inc Twin Harbors Lumber Co Union Lumber Co W S PLYWOOD CORP Van Deinse Lumber Sales
Van Vleet Lumber Co
Walton Lumber Co
Walton Lumber Co
Washington Mfg Co
Washington Mfg Co
Washington Veneer Co
Washington Veneer Co
Wendling-Nathan Co
West Gregon Lumber Co
West Gregon Lumber Co
West Waterway Lumber (
Western Pine Mfg Co
Western Pine Mfg Co
Western Side Lumber Co western Prins Mill Co.

WEYERMACUSER SALES CO.

WEYERMACUSER SALES CO.

White Prins Lumber Co.

White Prins Lumber Co.

White River Lumber Co.

White River Lumber Co.

Williamite Mills Co.

Williamite Mills Co.

Williamite Mills Co.

Williamite Mills Lumber Co.

Williamite Mills Co.

Williamite

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64 Products Inc.

Adams (8 B) Lamber Ce Ince
Andersen-Tully Ce
Angelina Birdwood Ealin Ce
Angelina Birdwood Ealin Ce
Angelina Birdwood Ealin Ce
Angelina Birdwood Ce
Allantic Lumber Ce
Allantic Lumber Ce
Early (P M) Lumber Ce
Early (P M) Lumber Ce
Elack (J W) Lumber Ce
Elack (E L) Ce
Enrollyin Coporage Ce
Elack (E L) Ce
Enrollyin Coporage Ce
Elack (E L) Ce
Elack (E LUMBER, GUM CRUSSETT LUMBER CO
DACES EMPER CO
DACES ERRORE CO
LA LUMBER CO
DECES LUMBER CO
DECES LUMBER CO
Elrod (J E) Lumber Co
Elrod (J E) Lumber Co
Elrod (J E) Lumber Co
FAIR (B L) LUMBER CO
FAIR CO
FAIR CO
FAIR CO
EL LUMBER CO
FAIR CO
EL CHECK

TENTE LUMBER CO
EL CHECK

TENT FAIR (B. L) LUNEER CP Farits Lumber Co Fernguon (W T) Lumber Co Fligher Brothers Lumber Co Foley Lumber Industries Frield Ember Industries Inc Fry-Fullon Lumber Co Frieldon Band Mylusod & Lumber Co Green Brothers Lumber Co Graham Lumber Co Graham Lumber Co Graham Lumber Co Graham Lumber Co Garden Lumber Co Hall (D H) Lumber Co Henderson Molous Co
Heilper Deutsch Edwards Ine
Hobac Venser & Lumber Co
Hoffman Lamber Co
Hoffman Lamber Co
Hoffman Lamber Co
Hoffman Lamber Co
Houston Brothers
Hunt (J & B. Lumber Co
Hunt (Lacy H) Lumber Co
Houston Brothers
Hunt (J & B. Lumber Co
Houston Brothers
Hunt (Lacy H) Lumber Co
Kelloga Lumber Co
Hoffman Lumber Co
Loga Co Santes River Hardwood Co Schwiefe Lumber & Shingle Co Schwing Lumber & Shingle Co Scotch Lumber Co Sears Lumber Co Sears Lumber Co Smith Comber Co Smith Comber Co Smith (W T) Lumber Co Smodhener (D) Co Scotchwestern Industries Inc Scotchwestern Industries Inc Scotchwestern Industries Co Scottwern Pine Lumber Co Scottwern Pine Lumber Co

Bondhere Wile Lumber Co
Sparisman Hardwood Lumber Co
Stark (James E) Co
Stark (James E) Co
Stevari (E A) Lumber Co
Story (W M) Lumber Co
Touland Lumber Co
Touland Lumber Co
Touland C

#### LUMBER, HEMLOCK, WESTERN

Adair (Jon A) Lumber Co
Bay-City Lumber Co
Bay-City Lumber Co
Bay-City Lumber Co
Bay-City Lumber Co
Bradley Lumber Co
Bradley Lumber Co
Bradley Lumber Co
Condens Control Frobates Ltd
Condition Mig Co
Cariton Mig Co
Columbia River Paper Milia
Contact Lumber Co
Columbia River Paper Milia
Contact Lumber Co
Counter Lumber Co
Counter Lumber Co
Counter Lumber Co
Davis Sales Agency
Duncan Lumber Co
Davis Sales Agency
Duncan Lumber Co
Davis Sales Agency
Duncan Lumber Co
Firpine Products Co
Gondwin Johnson Ltd
Georgia-Pacific Piswood & Lumber Co
Gondwin Johnson Ltd
Gran Lumber Co
Gondwin Johnson Ltd
Gran Lumber Co
Gran Lumber Co
Heidner & Co
Heidner & Co
Heidner & Co
Heidner Co
Heidner Co
Johnson Ltd
Gran Lumber Co
Lustrational Timber Products Inc
Jarmer Co
Johnson Davis Co
Kennedy Johnson Co
Miller George Lumber Co
Miller (George Lumber Co
Miller (George Lumber Co
Miller (George Lumber Co
Morrill & Sturgeon Lumber Co
Sturgeon Agencican Lumber Co
Sturgeon Agencican Lumber Co
Morrill & Sturgeon Lumber Co
Sturgeon Agencican Lumber Co
Sturgeon Agencican Lumber Co
Morrill & Sturgeon Lumber Co
Morrill & Sturgeon Lumber Co
Sturgeon Lumber Co
West Gregon Lumber Co
Washington Veneer Co
West Gregon Lumber Co

WEYERHAEUSER SALES CO White River Lumber Co white River Lumber Co White Star Lumber Co Willamette Valley Lumber Co Willamette Valley Lumber Mills Wilson (A K) Lumber Mills Wilson (A K) Lumber Co Wouton Lumber Sales Co Wood (E K) Lumber Co Wouthward Lumber Co

#### LUMBER, LARCH, WESTERN

Number of Control of C

LUMBER, MAPLE P LUMBER, MAPLE

Adams (8 B) Lumber Co Inc

Adirondach Core & Plus Co

Altondach Core

Atlanta Gult Flooring Co

Atlanta Gult Flooring Co

Atlanta Gult Flooring Co

Atlanta Gulter Co

Bagnal (L. N)

Bagnal (L. N)

Bagnal (L. N)

Bagnal (L. N)

Barder (P B)

Barder (P B)

Barder (P B)

Berder (P B)

Berder (D B)

Berder (L. N)

Berder (D B)

Benis Hardwood Lumber Co

Berd (E. N)

Benis Hardwood Lumber Co

Berry (Pull B) Beard (E. N.) Lamber Co
Belcher (J. R.)
Benia Hardwood Lamber Co
Benia Hardwood Lamber Co
Blount Lamber Co
Blount Lamber Co
Booth Madition Lamber Co
Bonifas (William) Lamber Co
Bonifas (William) Lamber Co
Bonifas (William) Lamber Co
Breece-White Mig Co
Breece-White Mig Co
Breece-White Mig Co
Britol Dova & Lember Co
Britol Dova & Lember Co
Britol Dova & Lember Co
Carliaban (C. K.) & Sound Lamber Co
Caliblam (C. K.) & Sound Lamber Co
Caliblam (C. K.) & Sound Lamber Co
Carliaban Co
Carl Lumber Mills
Cleveland-decense Lumber Co
Confire Lumber Mills
Cleveland-decense Lumber Co
Consider Brester Lumber Co
Consider Brester Lumber Co
Consider Brester Lumber Co
Consider Brester Lumber Co
Conding Color Lumber Mills
Color (F. C.) & Co
Cooper-Smith Lumber Co
Cotton & Bandor
Co
Codena Lumber Co
Cotton & Bandor
Co
Cotton & Bandor
Co
Color Docus Lumber Co
Cotton & Bandor
Co
Color Color Co
Color & Co
Color Color Co
Color & C

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Districts (1921) Lumber Co
Billist Hardwood Co
Forman Co Mendow River Lumber Co
MURAGIL 26

Sidiran Lumber Cs
Susquahanna Chemical Corp
Swainsburna Chemical Corp
Swainsburna Chemical Corp
Swainsburna Camber Co
Trajor & Newcound Inc
Temple Lumber Co
Trata Longlea Lumber Co
Trajest Lumber Lumber Co
Triplest Lumber Co Inc
UnderSwood Veneer Co
United Timber & Lumber Co
United Co
Vental Lumber Co
Vental Lumber & Min Co
Virgeon (Jae) Lumber Co
Ward Lumber Co
Ward Lumber Co
Ward Lumber Co
Ward Lumber Co
Webster (H E) Lumber Co
William (J L) & Son
William (J L)

LUMBER, OAK, RED AND

WHITE

Adams (8 B) Lumber Co Ine

Adiroudeck Core & Flag Co

Anderson-Tully Co

Anderson-Tully Co

Anderson-Tully Co

Anderson-Tully Co

Adams Co

Allanta Camber Co

Allanta Gal Filoring Co

Allanta Hardwood Co

Balley Lumber Co

Balley Lumber Co

Balley Lumber Co

Beard (E Ni Lumber Co

Beard (E Ni Lumber Co

Beard (E Ni Lumber Co

Bodne (I W) Lumber Co

Blick (J W) Lumber Co

Blick (J W) Lumber Co

Bodne (H M)

Bodine (C P) Lumber Co

Bodne (H M)

Bowen (A M) Lumber Co Booher (H M) Bowen (A M) Lumber Co BRADLEY LUMBER CO OF ARK Breece-White Mig Co Registal Door & Lumber Co Bowen to LUMBER to be Breece. White Mfg. Co
Bristol Door & Lumber Co
Brown (D D)
BRUCE (E L) CO
Callaham (C K) & Sons Lumber Co Brown (U D)

BULET (C E)

SHUEC (C E)

SHUEC (C E)

Camp Mfg Co

Carn Lumber Co

Carr Lumber Co

Charles (C C)

Conding (Frank A) Co

Cook (F C L)

Cook (F C L)

Control (C C)

Corinth Planing Mill Co

Corinth Planing Mill Co

Cotton & Hanlor

Crisp (M E) Lumber Co

Cortonary (M E)

Crisp (M E)

Crisp (M E)

Countrol (C C)

Crisp (M E)

Countrol (C C)

Crisp (M E)

Countrol (C C)

Crisp (M E)

Cumber Co

Crisp (M E)

Crisp (M E)

Cumber Co

Crisp (M E)

Cumber Co

Crisp (M E)

Crisp (M E)

Cumber Co

Crisp (M E)

Cumber Co

Crisp (M E)

Cumber Co COLOM & Handon
COTION & Lumber CO
Crossac Co
Lumber Co
Davis Brothers Lumber Co
Lud
Dering J. 20 J. & Son
Dierlas Lumber & Co
Eliy-Thomas Lumber Co
Eliy-Thomas Lumber Co
Eliy-Thomas Lumber Co
Everett Bardwood Lumber Co
Everett Bardwood Lumber Co
Ferification
For Co
Ferification
Co
Ferification
For Co
For Co
Georgia-Pacific Flywood & Lumber Co
Georgia-Pacific Flywood & Lumber Co
Georgia-Pacific Flywood & Lumber Co
Genent Lumber Co
Hall (D H) Lumber Co
Hall (D H) Lumber Co
Hall (D N) Lumber Co
Hall (D N) Lumber Co
Hallett Mig Co Inc
Hallet Mig Co
Hallet Mig Co
Hallet

Huntington Hardwood Co
Hunt (Lacy B) Lamber Ce
Hutton & Bourbonnia Co
Hutton & Bourbonnia Co
Hutton & Bourbonnia Co
Hutton & Bourbonnia Co
Jackton Sawmill Co
Kellong Lomber Co
Kellong Lomber Co
Kellong Lomber Co
Keystone Lomber Co
Lomber Co
Lomber Co
Lomber Co
Learned (R S) & Son
LeBlane Lomber Co
Learned (R S) & Son
LeBlane Lomber Co
Legitury Brothers
Lightury Brothers
Lightury Brothers
Lomber Co
Lightury Brothers
Lomber Co
Lightury Brothers
Lomber Co
Lightury Brothers
Low Sewscomb Mill & Lomber Co
Low Sewscomb Mill & Lomber Co AMEL-RELL LUNNER CA
LOUISIANS CENTER LUNNER CS
Mandeld Hardwood Lumber Co
Mandeld Hardwood Lumber Co
Marchail Lunber Co
Marchail Lunber Co
Marchail Cher So Co
Marchail Cher Co
Miller & Co
Mortino (T W) & Co
Montrino (T W) & Co
Montri

West Virginia Lumber Co Westerott (J D) & 800 Winsher Lumber To Willamer (J L) & 800 Willamer (J L) & 800 Willamer & 10.1

LUMBER, PECAN

PLUMBER, PECAN
Anderson-Tully Go
Angellan Hardwood Salas Co
Arganian Hamber Go
Atlantic Lossber Co
Barger (P Mi Lumber Co
Barger (P Mi Lumber Co
Bowen (A Mi Lumber Co
College (Amber Co
Colle Clarke County Lomber Milla
Conbling (Frank A) Co
CRESSETT LUBURE CO
DEED LAMBER CO
DETEN LAMBER CO
DETEN LOWER CO
ELTON COUNTY
Fright Provide Co
ELTON COUNTY
Fright Provide Co
ELTON COUNTY
Fright Provide Co
Forty-Crement Lumber Co
Forty-Crement Lumber Co
Gaines Hardwood Lumber Co
Gaines Hardwood Lumber Co
Gaines Hardwood Lumber Co
Gaines Hardwood Lumber Co
Hardwood Lumber Co
Hardwood Lumber Co
Hardwood Lumber Co
Hall-Inser Lumber Co
Jones (J M) Lumber Co
Marin (How Lumber Co
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Marin (How O) Lumber Co
Milland Valley Lumber Co
Milland Valley Lumber Co
Hander Co Southern Lumber Co SOUTHERN PINE LUMBER CO Stark (James E) Co Notificate Company of the Company of

LUMBER, PINE, NORWAY

Cludier Brothers Co
Christianen (C M) Co
Christianen (C M) Co
Cross (George El à Bono
Cross Austin à Ireland Lumber Co
Finit John Es
Hancock (M B) Ine
Hanco Trout Creek Lumber Co Wallrich (M J) Land & Lumber Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

**LUMBER, PINE, PONDEROSA** 

Adar (Jan. A) Lamber Co
Alexandre Vaukuy Lumber Co
Angels Box & Lumber Co
Alas The Co
Ralanoux Lamber Co
Ralanoux Lumber Co
Ralanoux Lumber Co
Ralanoux Lumber Co
Rilanoux Lumber Co
Lindica Lumber Co
California Poser Co
California Rogar & Western Pine Agency
Concade Lumber Co
California Poser Co
California Rogar & Western Pine Agency
Concade Lumber Co
Colidao (H S) Inc
Concade Lumber Co
Colidao (H S) Inc
Confort (George V) Lumber Co
Colidao (H S) Inc
Confort (George V) Lumber Co
Crassig Mountain Lumber Co
Crassig Mountain Lumber Co
Crassig Mountain Lumber Co
Crassig Lumber Co
Contact Lumber Co
Contact Lumber Co
Contact Lumber Co
Crassig Mountain Lumber Co
Contact Contact Co
Contact New Mexico Timber Co
Northment Timber Co
Ochoox Lamber Co
Pack Egier Sales Co
Patrick Egier Co
Patrick Lamber Co
Patrick Lamber Co
Pethaditin Lamber Co
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Pethaditin Lamber Co
Pethaditin Lamber Co
Ochoox Co
Ochoox

Warm Springs Lumber Co Wendling-Nathan Co West Side Lumber Co West Side Lumber Co WEYERHAEUSER SALES CO White Pine Lamber Co
Wikitanon Lumber Co
Wikitanon Lumber Co
Wikitano Lak D. Lumber Co
Winelester Box Co
Winelester Box Co
Winelester Box Co
Winelester Box Co
Winter Brothers Lumber Products Inc
Winter Lumber Sales Co
Woodward Lumber Co
Woodward Lumber Co
Woodward Lumber Co
Soed Lumber Co
Soed Lumber Co
Soed Lumber Co
Soed Lumber Co

LUMBER, PINE, SUGAR

LUMBER, PINE, SUGAR

Adalar (Jon A) Lumber Co

Rabcook Lumber Co

California Door Co

California Door Co

California Bogar A Western Pine Agency

Cansade Pacific Lumber Co

Chisholm (H 8) Inc

Colline Fice Co

Contact Lumber Co

Forguno (W T) Lumber Co

Forguno (W T) Lumber Co

Firstiman Lumber Co

Hines (Edward) Lumber Co

Kennedy (J O) Lumber Co

Kennedy (J O) Lumber Co

Kunneth Basin Pine Mills Inc Kennedy (J G) Lumber Co Kent Lumber Co Kismath Basin Pine Mills Inc Knudson & Mercer Lumber Co Kogap Lumber Industries LONG-BELL LUMBER CO Roudenn & Mercer Lumber Co
Korap Lumber Hodsstries
LONG-BELL LUMBER CO
LONG-BELL LUMBER CO
MERCH LUMBER CO
MERCH LUMBER CO
MESCH LUMBER CO
MOSAL LUMBER CO
MOSAL LUMBER CO
PATICIK LUMBER CO
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C Wendling-Nathan Co WEYERHAEUSER SALES CO Wilkingon Lumber Co Wilkinson Lumber Co
Wilson (A K) Lumber Co
Wilson (A K) Lumber Co
Winton Lumber Sales Co
Wistar-Underhill & Co
Woodward Lumber Co
Wulchet Lumber Co
Zamboni Lumber Co Ine

#### LUMBER, PINE, WHITE, IDAHO

Wales Limber Co WEYERHAEUSER SALES CO White Pine Sash Co Winton Lumber Salen Co Woodward Lumber Co

LUMBER, PINE, WHITE,

NORTHERN NORTHERN
Adirocdes Core & Ping Co
Abnosed Lumber Co
Babcock Lumber Co
Babcock Lumber Co
Babcock Lumber Co
Bochun Madisen Lumber Co
Bochun Madisen Lumber Co
Bochun Madisen Lumber Co
Bout C E & F O) Co
Cadillac-Soo Lumber Co
Chaffee Brothern Co
Chaffee Brothern Co
Chaffee Brothern Co
Country Lumber Co
Country Lumber Mills
Country Lumber Mills Consider Limits from Control Limits from Contr Kogap Lumber Industries
Langdell Lumber Co
LONG-BELL UNBER CO
MASON (A) & Sons Inc
MASON (A) & Sons Inc
McCulloch Lumber Co
McCulloch Lumber Co
McCulloch Lumber Co
McCulloch Lumber Co
McCulloch Lumber & Supply Co
McCulloch Lumber & Supply Co
McCulloch Lumber & Co
McCulloch Lumber Co
McCulloch Lumber Co
McCulloch Co
Miler (George E) Lumber Co
Neils (J) Lumber Co
Neils (J) Lumber Co
Neils (Lumber Co
Rainy Lake Lumber Co
RSODIS PLYWOOD CORP
RSON (Warron) Lumber Co 880018 PLYWESD C88P
Ross (Warren) Lumber Co
Russell & Pugh Lumber Co
Southern Oregan Sugar Pine Co
Southern Oregan Sugar Pine Co
Southern Oregan Sugar Pine Co
Timberlands Ine
Treate-Nanthe Co Ine
Trout Creek Lumber Co
Lumberus Co
Lumberus Co
Lumberus Co
Wallrich (M J) Land & Lumber Co
Wallrich (M J) Land & Lumber Co
Wallrich (M J) Land & Lumber Co
Ward Lumber Co
Ward Lumber Co Ward Lumber Co WEYERHAEUSER SALES CO White Pine Lumber Co White River Timber Co Winton Lumber Sales Co Wistar-Underhill & Co

#### LUMBER, PINE, YELLOW, SOUTHERN

SOUTHERN
Altrander Brethern Lumber Co
Alger-Sullivan Lumber Co
Allison Lumber Co
Allison Lumber Co
Altrander Co
Angelina County Lumber Co
Argelina County Lumber Co
Argenia County Lumber Co
Argenia Lumber Co
Argenia County Lumber Co
Argenia Lumber Co
Alania Camberring Co
Allania Gallison County
Ballock Lumber Co
Augusta Hardwood Co
Balocck Lumber Co
Balocck Lumber Co Babcock Lumber Co
Bagnal (I. N)
Banger (P M) Lumber Co
Barnes Lumber Co;
Beard (E N) Lumber Co
Beatrice Lumber Co
Belcher (W A) Lumber Co
Belcher (W A) Lumber Co

Belmont Lumbler Co
Beatley (J A) Lumber Co
Beatley (J A) Lumber Co
Beatley (J A) Lumber Co
Beatley Lumber Co
Brand (J N) Lumber Co
Brown Lumber Co Brown Lumber Co
BRUCE (E. LO CO
Burdette Lumber Co
Callaham (C. K) & Bona Lumber Co
Campbell Coal Co
Camp Mig Co
Carnotte Lumber Co
Carter (W. T) & Brothers
Cascade Pacific Lumber Co
Central Lumber Co
Central Lumber Co
Central Lumber Co
Citate County Lumber Mills
Cleveland-Cocone Lumber Co
Cilate County Lumber Co
Cilate County Lumber Co
Colonia Lumber Co
Colonia Lumber Co
Consatuga River Lumber Co
Constitute County Counter Co
Constitute County Counter Co
Constitute Counter Co
Constitute Counter Co
County Lumber Co
Cotton & Haalon
Cotton & Manlon
Consesser Lumber & Cr
Consesser Lumber Co
Consesser Lumber Cotton & Hanlon
Cortinth Flanting Mill Co
Crashy Lumber & Mig Go
Crashy Lumber & Mig Go
Crashy Lumber & Mig Go
Crowell Long Leaf Lumber Co
Dargon Lumber Co
Dargon Lumber Co
Dargon Lumber Co
Dargon Lumber Mig Co
Dargon Lumber Mig Co
Delwess (A) Lumber Co
Delwess (A) Lumber Co
Delwess (A) Lumber Co
Delwess (A) Lumber Co
Dolan Lumber Co
Exchange Sawmills Sales Co
Exchange Sawmills Sales Co
Exchange Sawmills Sales Co
Farix Lumber Co
Exchange Sawmills Sales Co
Farix Lumber Co
Forter Lumber Co
Floright Lumber Co
Floright Lumber Co
Floright Lumber Co
Georgia-Facilic Plymod Lumber Co
Gurdon Lumber Co
Hallett Mig Co Inc. Gurdon Lumber Co Hallett Mfg Co Inc Gurdon Lumber Co
Hallett Mig Co Inc
Hancock Jamber Co.
Hendernon-Molpus Co.
Hendernon-Molpus Co.
Hillyer Deutsch Edwards To.
Hilly-Behn Lumber Co.
Houston Brothers
Haut Claze B Lumber Co.
Hutton & Bourbonnais Co.
Jeffreys Lumber Co.
Hutton & Bourbonnais Co.
Jeffreys Mers Mig Co.
Les Mig Co Lightery Brothers
Lightery Brothers
Louisians Control Lomber Co
Louisians Control Lomber Co
Manufact Marthwood Lomber Co
May Brothers
McCann Lumber Co
McCarroll Lumber Co McGuline Lumber Co
McGuvin (W M) Lumber Co
McGuvin (W M) Lumber Co
McMcGL Co 142
Midland Valley Lumber Co
Miller C R I Mill Co
Milline (R I Mill Co
Millins Lumber Co
Millins Lumber Co
Next Lumber & Mfg Co
Next Lumber & Mfg Co
Next Lumber Sales Corp

Gualinier Limber Co
Oran Lumber Co
Oran Lumber Co
Palmetto Lumber Co
Palmetto Lumber Co
Patrono Mclanis Lumber Co
Patrono Mclanis Lumber Co
Patrono Mclanis Lumber Co
Patrono Mclanis Lumber Co
Patron Franki Lumber Co
Pine Plume Lumber Co
Pine Plume Lumber Co
Pine Plume Lumber Co
Pine Plume Lumber & Export Co
Reynolds Brothers Lumber Co
Reynolds Brothers Lumber Co
Reynolds Brothers Lumber Co
Reynolds Mammell Lumber Co
Reynolds Brothers Lumber Co
Reynolds Brothers Lumber Co
Reynolds Brothers Lumber Co
Reynolds Brothers Co
Reynolds Lumber Co
Saltine Lumber Co
Saltine Lumber Co
Sing Sutton (T 0) & Sons

Taylor & Newcomb Inc

Temple Lumber Co

Taylor & Newcomb Inc

Temple Lumber Co

Texas Longleaf Lumber Co

Texas Longleaf Lumber Co

Tremon Lumber Co

Tre

LUMBER, POPLAR

Adams (S B) Lumber Co Inc

Anderson-Tuilz Co

Anderson-Tuilz Co

Allantia (S B) Lumber Co

Allantia (S B) Lumber Co

Allantia (Lumber Co

Allantia (Lumber Co

Bagnal (L N)

Bagnal (L LUMBER, POPLAR

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Fry-Fulton Lumber Co
Fulton Eand Mill
Gaines Hardwood Lumber Co
Gennett Lumber Co
Gennett Lumber Co
Gennett Lumber Co
Graban Lumber Co
Graban Lumber Co
Greene Brothers Lumber Co
Griffith Lumber Co
Griffith Lumber Co
Hall (D H) Lumber Co soonen prothers Lumber Co
Graham Loumber Co
Hallet Lumber Co
Hallet Mig Co Inc
Hall (D H) Lumber Co
Hallet Mig Co Inc
Hallet Co
Hanner (J P) Live Co
Holly Hill Lumber Co
Holly Hill Lumber Co
Holly Hill Lumber Co
Holly Hill Lumber Co
Hellow Lumber Co
Hellow Lumber Co
Hellow Lumber Co
Leming (M E) Lumber Co
Leming (M E) Lumber Co
Leming (M E) Lumber Co
May Brothers
McCarroll Lumber Co
Mobible River Sawmill Co
Mortico Gross & Co
Mowel Cambre Co
Owen (R C) Co
Pakkay Lumber Co
Phillips-Rhyro Lumber Co
Phillips-Rhyro Lumber Co
Phillips-Rhyro Lumber Co PARKAY INC
Parnell Lumber Co Ine
Phillips Blyne Lumber Co Ine
Phillips Blyne Lumber Co
Phillips Blyne Lumber Cop
Phillips Blyne Lumber Cop
Pointer Cop
Pointer Lumber & Mig Co
Pratt (E W)

LUMBER, REDWOOD

Angels Box & Lumber Co Cascade Pacific Lumber Co Dolbeer & Carnon Lumber Co Georgia-Pacific Piywood & Lumber Co Hammond Lumber Co

Blatmer Eureka Lumber Co Northern Redwood Lumber Co PAGEFIG LUMBER CO Bedwood Mrs Co Bedwood Sales Co Silbermand, (George 1) & See Bedweek Sales Co Stimpson (George 3) & Sons Co SIMPSON LOGGING CO Southwest Lumber Mills Inc Stanton (E 3) & Son Sustes Lumber Co Union Lumber Co Wallace Mill & Lumber Co Wendling-Nathan Co Wilson (A K) Lumber Co

LUMBER, SPRUCE, SITKA

Adair (Jos A) Lumber Co Astoria Spruce & Lumber Export Co Canadian Western Lumber Co Ltd Canthook Lumber Co Adult 1988 of a similar Report Co Androlla Spence at main's Report Co Lid Canthook Lumber Co Lid Canthook Lumber Co Contact Lumber Co Contact Lumber Co Contact Lumber Co Contact Lumber Co Lid Contact Co Willapa Harbor Lumber Mills Wilson (A K) Lumber Co Winter Bros Lumber Products Inc Wood (E K) Lumber Co

#### LUMBER, CREOSOTED & SALT TREATED

SALT TREATED

American Lumber & Treating Co

Atlantic Crossorting Co

Real Lamber Co

Real Lamber Co

Clear Fir Sales Co

Clear Fir Sales Co

COMPSENDED & MEDICA

COMPSENDED & M NIPS Lumber Corp.
Lone Star Cresorting Co.
LONE CARE CREEK. LUMBER CO.
Marth & Truman Lumber Co.
Martin-Dickson Inc.
McQueston (George) Co.
Moss (7 J) Tie Co.
Pope & Talbot Inc.
Protexol Corp.
Southern Wood Preserving Co.
Taylor-Solutit Co. TAYLOR SOLUTION OF THE BER STRUCTURES INC. West Coast Wood Preserving Co WEYERNAEUSER SALES CO Wood (E K) Lumber Co Yellow Pine Sales Co

#### LUMBER, FLAMEPROOF

American Lumber & Treating Co Fordyce-Cromett Lumber Co Fox Brothers Mfg Co Protexol Corp

#### LUMBER, MINIATURE Miniature Lumbereraft Co.

### MAIL BOXES & DROPS

AIR CONTROL PRODUCTS INC Ajux Hardware Mfg Corp. Ailen Steel Products

AMERICAN DEVICE MFG CO Auth Electrical Speciair

B & T WETALS CO CONTINUE TRANSPORT TO THE CONTINUE TO THE CONT

GETTY (H S) & CO INC Harris Inc.

(H LAN) STEEL PRODUCTS CO

(KCWARE HFG CO

KOISLAM MAIL BOX CO

KOISLAM MAIL BOX CO

MAIESTIC CO

MAIESTIC CO

METAL PRODUCTS CORP

MATONAL BRASS CO

NOVERIA LOCK CO LOCK & Hardware

CO

NOVERIA LOCK CO DIV Segal Lock & Hardware

CO

NUTONE INC Parker (S) Have Mfg Corp Penn-Greg Mfg Co Perfection Store Device Co Reading Hardware Corp

Reflecto Letters RUSSELL & ERWIN DIV AMERICAN HARD-WARE CORP Lock Works SARGENT & CO re Co

Slaymaker Lock Co Sperti Faraday Inc Standard Bronze Co Wiemann (Ernest) Iron Works VALE & TOWNE MFG CO

#### MANDRELS, SAW

Beach Mfg Co Chase Turbine Mfg Co Clizbe Brothers Mig Co COMSDLIDATED MACHINERY & SUPPLY CO LTD CITB
Corinth Machinery Co
Cunningham Machinery Corp
Fag (J A) & Egan Co
Filer & Stowell Co
Filer & Stowell Co
Filer & Stowell Co
Industrial Iron Works
Lane Mig Co
Frescott Co
Frescott Co
Frescott Co
Face-American Machine Co

MANTELS, FIREPLACE

Barko Millsork Co CAR MOANS & COLLIES CO COLUMBIA MARKEL CO INC CUSTIS COS 1982 Farley & Loctacher Mfg Co GREGG & SON 1982 Huttig Mfg CO Ideal CO MATQUART MINIMOVA CO MOTGEN CO PRICE FIREPLACE MEATER & TANK CORP READYBUILT PRODUCTS CO Roach & Museer Co Silbernagel (George J) & Sons Co Snedaker (Frank C) & Co Inc

#### MARKERS, DRIVEWAY REFLECTING

Auto Sign Display Co Fox Valley Forge Modern Metals Co Reflecto Letters Co

MATS, RUBBER

Diamond Rubber Div Goodrich (B F) Co Hamilton Rubber Mfg Co Perfo Mat. and Rubber Co Inc U S Rubber Co Www.ter Rubber Co

MESH, WIRE

F MED-II, WHIKE
AMERICAN STEEL & WHRE CR
CEGO STEEL PRODUCTS CORP
CHASE BRASS & COPPER CR
Colorado Fuel & Iron Corp
COLUMBIA STEEL CR
COLUMBIA STEEL CR
CUSTIS CRS INC.
KEYSTONE STEEL & WHRE CR
LOGAL CR
Flower Co. Pioneer Co PITTSBURGH STEEL PRODUCTS CO REPUBLIC STEEL CORP REPUBLIC STEEL CORP
Shedhel Steel Corp Iron Works Inc
Southern Wire & Iron Works
TERRESSEE COAL 1809 & RR CO
TRINGESSEE COAL 1809 & RR CO
TRINGESSEE COAL 1809 & RR CO
Wheeling Corrugating Co
Wickeling Contractors Inc
Wickeling Includers Inc

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

## METAL LATH MACHINES,

Harvey Mfg Co Scritchfield Mfg Co

### METAL SINK BOWLS

ernational Nickel Co nestown Metal Products Co Stainless Sluk Curp Legion Stainless

#### METERS, FEED WATER

Bristel Co Neptune Meter Co Republic Flow Meters Co Taylor Instrument Co

#### **▶** MICROMETERS

Brown & Sharpe Mfg Co Lufkin Rule Co Millers Falls Co Starrett (L S) Co

#### MILLING IN TRANSIT

Bradley Miller & Co Corinth Planing Mill Co Grayeon Lumber Co Ballack & Howard Lumber Co Kinzua Pine Mills Co Stark (James E) Co Tacoma Lumber Fabricating Co

#### MIRRORS, BATHROOM

Belknap Glass Co CAREY (PHILIP) MFG CO Conroy-Prough Glass Co COPCO STEEL & ENGINEERING CS Hagement Cos Inc LIBBEY-OWERS-FORD GLASS CO MIAMI CABINET DIV CAREY (PHILIP) MFE ES National Mirror Works Parker (Charles) Co PITTSBURGH PLATE GLASS CD Standard Steel Cabinet Co Toledo Plate & Window Glass Co

#### MIRRORS, DECORATIVE & HOUSEHOLD

Acme Specialty Mfg Co Art Mirror & Glass Specialty Co Bache (Semon) & Co Betknap Glass Co Bennett Mfg Co Deathern Glass Co
Forman-Ford & Co
Fuller (W P) & Co
Fuller (W P) & Co
Fuller (W P) & Co
Hagemont Citis and Mrg Co
LAWYSIN (F N) CO
LAWYSIN (F N) CO
MIAMI CABINET SIV CAREY (PHILIP)
MFG CO
MIAMI CABINET SIV CAREY
MFG CO
MIAMI CABINET SIV CAREY
CO
MIAMI CABINET
CO
MIAMI CABINET
CO
MIAMI CO
M Parker (Charles) Co PITTSBURGH PLATE GLASS CO Rafetee Glam Co Rtandard Building Products Co Toledo Plate & Window Glam Co Tyler & Hippach Glam Co Warren Co

#### MIRRORS, TRANSPARENT LIBREY-OWENS-FORD GLASS CO.

#### MITER BOXES

American Crayon Cu Empire Level Mfg Co MACKLANBURG-DUNCAN CO McGrath-St : McGrath-St : Millers Fails Co National Guard Products National Gu mockford Mitre Ben Co SELCH (WALTER E) 4 CO STANLEY TOOLS DIV STANLEY WORKS Union Hardware Co Youngstown Mfg Co

#### MODEL HOUSES, SCALE

Architectural Model Materi Homes Center Jayline Mfg Co Inc Ministure Lumberer reraft Co. Ministure Lumbercraft Co Mitchell Models National Plan Service Inc

#### MOPS, ROOFING APPLICA-TOR

Algoma Mfg Co Cupples Co Graham (John H) Co Inc Kirby Industries

#### **►** MORTAR

serican Fluresit Co Inc Lasting Products Co MEDURA PORTLAND CEMENT CO National Lime & Stone Co Washington Brick & Lime Co What Cheer Clay Products Co

#### MORTAR BOXES

All-Steel Equipment Co Inc American Ladder Co American Sheet Metal Works American Steel Works BOSTWICK STEEL LATH CO Donler Englises Sonley Browning Co Essiek Mfg Co GOLDBLATT TOOL CO College Steel Form & Iron Co Heitzet Meet Form & Fron Co Jacksof Mfg Co KEWANEE MFG CO MAJESTIC CO MULLER MACHINERY CO INC PRICE FIREPLACE HEATER & TANK CORP

#### MORTAR MIX, GROUND CLAY

Adel Clay Products Co Barber-Greene Co Carney Co Chicago Fire Brick Co Chicago Fire Brick Co Colorecte Industries Ine Hartison: Walker Befrasterine Ce National Moria & Supply Co Bobinson Clay Product Co Bobinson Clay Product Co Sakrete Scheffor Brick & Tile Co Sikrete Scheffor Brick & Tile Co Sikrete U S Gyusum Co U S Gyusum Co U S Gyusum Co What Cheer Clay Products Co Washington Brick & Lime Co What Cheer Clay Products Co

#### MORTAR, POINTING X-Pando Corp

#### MORTAR SPREADING MACHINES

Rapid Mfg Co

#### MORTISERS, SASH PULLEY Oliver Machinery Co.

### MORTISERS, VIBRATING BIT

#### MOTORS, ELECTRIC

Abart Gear & Machine Co ALLIS-CHALMERS MFG CO ATLAS PRESS CO Beach Mfg Co BOICE-CRANE CO Century Electric Co DELCO APPLIANCE DIV GENERAL MOTORS CORP Diehl Mfg Co Electrical Div Singer Mfg Co EMERSON ELECTRIC MFG CO Fairbanks-Morse & Co Fasco INDUSTRIES INC GENERAL ELECTRIC OS APPARATUS DEPT Hamilton Beach Co Div Scovill Mfg Co Kingston-Conley Div Hoover Co Leland Electric Co WALL TOOL CO Peerless Electric Co Robbins & Myers Co Russell Electric Co Signal Electric Mfg Co Sutton (O A) Corp WESTINGHOUSE ELECTRIC CORP

#### MOULDING, CONDUIT BASE

Ames Metal Moulding Co Inc Knapp Brothers Mfg Co National Electric Products Corp

#### MOULDINGS, HARDBOARD

BARCLAY MFG CO INC Gibba Boardtile Corp MARSH WALL PRODUCTS INC Miratile Mfg Co PRESTILE MFG CO Roxdale Building Products Corp Rozdale Building TYLAC CO Wallace Mfg Co

#### MOULDINGS, METAL

P MOULDINGS, METAL
Actas Reel Products Corp
A & F Tilebaard Co
ALLWEITAL WEATHERSTRIP CO
ALLWEITAL WEATHERSTRIP CO
ALLWEITAL WEATHERSTRIP CO
ALLWEITAL CO America
American Brum Co
EROUX MFG CO
EROUX MFG CO
ELUM (FULLUS) & CO INC
BOSTWICK STEEL LATH CO
BOSTWICK STEEL LATH CO
BRAND MISCONING
BRAND Braun (J G) Co

Casings Inc
CECO STEEL PRODUCTS COMP
CENTRAL METAL STRIP CO
CHASE BRASS & COPPER CO
Chicago Metallic Sash Co
Colonial Sales Corp DETROIT STEEL PRODUCTS CO

Decorte Inc.

PER STEEL PROBUCTS CO

DETRICONE THEORAGE COPP

FOR METAL HICKORY

FOR METAL MUNICIPAL COPP

Goldmith Metal Lath Co

Goldmith Metal Lath Co

HATTER MANUAL COPP

GOLDMITH METAL COPP

HATTER MANUAL COPP

HATTER COPP

MINISTRUM COPP

M Penn Supply & Metal Corp PITTSBURGH PLAYE GLASS CO Potts-Farrington Co
PRESTILE MFG CO
Protex Weatherstrip Mfg Co
Pyramid Metals Co
Pyramid Mouldings Inc
Pyramid Products Co Reverse Copper & Brass Inc
REVNOLDS METALS CO BUILDING PROB-UCTS DIV.
Rozdale Ruilding P-

Roxdale Building Products Corp ST PAUL CORNUGATING CO Samson Products Co SELCK (WALTER E) & CO Serrick Corp John Lees Div STEELCRAFT MFG CO uperior Industries Inc uperior Wall Products Co & W Moulding Co Trimedge Ine TRUSCON STEEL CO TYLAC CO United Industries Inc nited Industries Inc.
8 Gypsum Co.
8 PLYWOOD CORP Wallace Mfg Co Werner (B D) Co Inc Wheeling Cornugating Co Wollacers Steel Corn WOOSTER PRODUCTS INC Youngstown Mfg Co Inc

#### MOULDINGS, PLASTIC

PMOULDINGS, PLASIN

RENGIX MFG CO RC O

BLUM (JULIUS) & CO INC

B 4 T NETALS CO

Chicago Wood & Plantic Products

Chicago Wood & Plantic Products

Chicago Wood & Plantic Products

Chicago Wood and the Chicago

Limpertal Moldod Products Co

MACKLANBUSG-DUNCAM CO

MACKLANBUSG-DUNCAM CO

MACKLANBUSG-DUNCAM CO

PACSTILL PRODUCTS INC

VALIDATION OF THE CO

PRESTILE WFG CO

Skyline Industries Skyline Industries Superior Plastics Div Commonwealth Plastics W Moulding Co

### MOULDINGS, PRICE CARD

corite Inc nning (H A) number (L F) & Sons Inc ller (W C) & Co nes (Edward) Lumber Ca pp Press Inc Kinkead Industries Inc MACKLANBURG-DUNCAN CO

MARSH WALL PRODUCTS INC Mellicha Systems Inc National Aluminum Co National Guard Products Pyramid Mouldings Inc Reflector Hardware Corp Beneva & W Moulding Co Trimedge Inc Warren (J D) Mfg Co Zimmerman (F M)

#### MOULDINGS, WOOD

Actna Flywood & Vencer Co Arkansas Oak Flooring Co BEMDIX MFG CO Biles-Coleman Lumber Co Inc SLUM (JULIUS) CO INC BRADLEY LUMBER CO OF ARK Bradley Miller & C BRUCE (E L) CO Burke Millwork Co Burke Millwork Co Cameron (William) & Co Inc Ideal Dir CARR ABAMS & COLLIER CO Chicago Wood & Flastic Products Cole Mfg Co Cook County Lumber Co CROSSETT LUMBER CE CURTIS COMPANIES INC CURTIS COMPARIES INC
DURANT LONG CO
Faring & Loctocher Mig Co
Faring & Loctocher Mig Co
Faring & Loctocher Mig Co
Faring & Loctocher Co
General Faring Industries Inc
General Faring Corp.
General Far Huttig Mfg Co
Ideal Company
Keystone Frame & Mfg Co
Kinzua Pine Mills Co
Lelwood Coy
LONG-BELL LUMBER CO
MATQUART MILWORK CO
MARSH WALL PRODUCTS INC
Malk Scattle Lumber Co MARSH WALL PROBUCTS IN Mauk Seattle Lumber Co Midwest Jobber Inc Midwest Jobber Inc Midwest Jobber Inc Mortan Sash & Boor Co Northern Sash & Boor Co Oregon-American Lumber Corp Shikosh Wood Products Corp PALEFIC LUMBER CE Corp PALEFIC LUMBER CE PACIFIC LUMBER CB
Phillips-Blyne Lumber Co
Pickering Lumber Co
Rock I Stand Millwork Co
Rock I Stand Millwork Co
Seneca Lumber & Millwork Co
Seneca Lumber & Millwork Co
Seneca Lumber & Millwork Co
Smith George J) & Sons Co
Smith (Balph L) Lumber Co
Smith (Balph L) Lumber Co Southern Lumber Co Spokane Sash & Stiles (H A) Co Don Tibbals Flooring Co
U S MENGEL PLYWOODS
Washington Mrs. Washington Mfg Co Western Pine Mfg Co Weyeren Pine Mfg Co Weyer Nate States Co White Pine Sash Co Willamete Valley Lumber Co Williams-Brownell Inc Wilson (A K) Lember Co Woodward Lumber Co

#### MOULDINGS, WOOD VENEER-ON-METAL

Keller Products Inc U S PLYWOOD CORP

#### NAIL PULLERS

Beiden Machine Co Bridgeport Hardware Mig Corp Crescent Tool Co Drew (C) & Co Inc MARKWELL MFG CO Union Hardware Co Woodings-Verona Tool Works

#### NAIL SETS

American Swins File & Tool Co Bridgeport Hardware Mfg Corp Brown & Sharpe Mfg Co Damascus Steel Products Corp Drew (C) & Co Inc Hisof Brettlew Maybew Steel Products Inc McPheron-Huff Tool Co Millers Falls Co Rainer-Fool Co Rainey-Tool Co STANLEY WORKS Starrett (L S) Co Syracuse Twist Drill Co Tuck Mfg Co Union Tool Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### NAIL & BOLT ANCHORS

Detices Inc MODRE (GOODLOE E) CO

#### NAILERS & TACKERS AUTO-MATIC

HANSEN (A L) MFG CO

#### NAILING, MACHINES

Dolg (W S) Inc Grammes (L F) & Sons Inc Bolt Mfg Co Independent Nail & Packing Co McCresky Tool Corp Spotnails Inc

#### NAILS, ALUMINUM

NASSALL (JOHN) INC New Holland Metals Co NICHOLS WIRE & ALUNINUM CO POUS-FARTINGTON CO REVNOLOS METALS CO BUILDING PROD-UCTS DIV

#### NAILS, BRAD

AMERICAN STEEL & WIRE CO Bethlehem Steel Co Continental Steel Corp Grammes (L F) & Sons Inc WASSALL (JOHN) INC Mid-States Steel & Wire Co MASSALL (1884) 186 Mid-States Steel & Wire Co Wheeling Steel Corp Wickwire Spenour Steel Div Calorado Foel & Iron Corp

#### NAILS, COMMON

Alan Wood Steel Co
AMERICAN STEEL 4 WIRE CO Angell Mail & Chaplet Co Atlas Tack Corp SAMBRICK (SIGHARD 3) Berger Mfg Co Div Republic Steel Corp Bethlehem Stael Ca Bethlehem Steel Co BOSTWICK STEEL LATH CO CHASE BRASS & COPPER CO COLUMBIA STEEL CO Continental Steel Corp COPPERWELD STEEL CO Prescent Brass & Pin Co Continental Seet Corp
CONTENTAL STEEL CO
COPPERWELD STEEL CO
EASTON NAIL CO
EASTON NAIL CO
EASTON NAIL CO
HANDSALL (1984) INC
HILDRICA STEEL CO
HILDRICA STEEL CO
HILDRICA STEEL CO
MINISTRUCT
HORSE ALEADING REED COP
KEYSTONE STEEL A WIRE CO
MINISTRUCT
MAIN (W B) CO
MINISTRUCT
MAIN (W B) CO
NOTINESSEED STEEL CO
NOTINESSEED STEEL CO
NOTINESSEED STEEL CO
PORTION OF THE PROBUCTS
TALL CORRUGATING CO
TURKER & SEYMOUR WIFE CO
WARD COMPANY INC Wash Company Inc Wheeling Corrugating Co Wickwire Brothers Inc Wickwire Spencer Steel Div Colorado Fuel & Iron Corp Wilson Steel & Wire Co

#### NAILS, COPPER

Alan Wood Steel Co AMERICAN STEEL & WIRE Co Angell Nail & Chaplet Co Ampil Nail & Chapit Go
Atlan Tack Come Copper Go
GRUNBIA SIEEL COMP
CONTINUENT SIEEL COMP
CONTINUENT SIEEL COMP
CONTINUENT SIEEL CO
DICTION WAS INTERED TO SIEEL CO
DICTION WAS INTERED TO SIEEL CO
INDEPENDENT SIEEL CO
TO

#### NAILS, CUT

Alan Wood Steel Ca wire CB
AMERICAN STEEL A WIRE CB
AMERICAN STEEL APPER CB
CONLINGATE ROW COPP.
EASTERN NAIL CB
MASSALL (1984) FBC
MASSALL (1984) FBC
MASSALL (1984) FBC
TEMPESSEE COAL FBWN & BALKBAB CB
TEMPESSEE COAL FBWN & BALKBAB CB
TEMPESSEE COAL FBWN & BALKBAB CB
Wheeling Corrogating Cb
Wheeling Steel Corp
Wickstrie Brothers Joc

#### NAILS, FLOORING

Alan Wood Steel Co AMERICAN STEEL & WIRE CO Continental Steel Corp Dickson Weatherproof Nail Co NASSALL (JOHN) INC

Independent Nail & Packing Co KEYSTONE STEEL & WINE CO Mane (W H) Co Mid-Statos Steel & Wire Co Northwestern Steel & Wire Co PITTSBURGH STEEL PRODUCTS CO REPUBLIC STEEL CORP TEMBERSSEE COAL INON & RAILBOAD CO TEMBERSSEE COAL INON & RAILBOAD CO lentine Equipment Co lecting Corrugating Co-ckwire Brothers Inc

NAILS, LATH

Alan Wood Steel Co AMERICAN STEEL & WIRE CO Beshienem Stort Co Continental Stort Corp COPPERWELD STEEL CO Goldmith Metal Lath Co HASSALL (JOHN) INC KEYSTONE STEEL & WIRE CO Mid-States Steel & Wire Co Northwestern Steel & Wire Co Penn Metal Co Inc Northwestern Steel & Wife Co Penn Metal Co Inc TENNESSEE COAL 1888 & RAILEBAD CO Valentine Equipment Co Winkwire Bros Inc

NAILS, LEAD HEAD

AMERICAN STEEL & WIRE CO Bethlehem Steel Co Continental Steel Corp Deniston Co-Dickson Weatherproof Nail Co-MASSALL (JOHN) INC. Independent Nail & Packing Co-HNLAND STEEL & WINE CO-MASS (W H) CO-MASS (W H) CO-Mase (W H) Co
Mid-States Steel & Wire Co
Mid-States Steel & Wire Co
Northwestern Steel & Wire Co
REPUBLIC STEEL CORP
TENNESSEE COAL INGN & MAILHOAD CO

NAILS, MASONRY

AMERICAN STEEL & WISE CO Badger Corrugating Co Colorado Fuel & Iron Corp Continental Skeel Corp Dickson Westherproof Nail Co HASSALL (18HH) INC Fillwood Bit. On Packing Co Model (1898) 18C Billwood Bit. On Packing Co Model (1898) 18C Sheffield Steel Corp Star Expansion Products Co TENNESSEE COAL IRON & RAILBOAD CO Tremont Nail Co

NAILS, ROOFING

Alan Wood Steel Co AMERICAN STEEL & WIRE CO ALIAS TACK COP BAMBRICK (BICHARD 3) Bethlehem Steel Co CHASE BRASS & COPPER CO Colorado Fuel & Iron Corp COLUMBIA STEEL CO Continental Steel Corp COPPERWELD STEEL CO CAPPERWELD STEEL CO
CUMPLES CO
CUMPLES CO
Deniston CO
Deniston CO
Deniston My CO
Edwards My Co
Edwar Valentine Equipment Co Wheeling Corrugating Co Wickwire Spencer Sizes Dir Colorado Fuel & Iron Corp Wilson Sizes & Wire Co

NAILS, SCREW TYPE

AMERICAN STEEL & WIRE CO COLUMBIA STEEL CO Continental Steel Corp Deniston Co
Dictions Westberproof Nail Co
E G BUILDING FASTREES CORP
HASSALL (JORNA) INC
Illimond Ming Co
Todeprodest Nail & Packing Co
Todeprodest Nail & Packing Co
Todeprodest Nail & Packing Co
Todeprodest Nail & Aleita Stronghold Screw Products Inc TENNESSEE COAL IRON & BAILBRAD CO

NAILS, SELFLOCKING E G BUILDING FASTENERS CORP ELASTIC STOP NUT CORP OF AMERICA NAILS, SHINGLE

ANTRICAN STEEL A WIRE CO
ALIAN TACK COMP
CONTROL TO COMP
COLORAD FUND & INC COMP
COLORAD STEEL CO
CONTROL SHEEL CO
CONTROL FASTERS OF AMERICA
Independent Nail & Parking Co
JOHNS & LAURINIS STEEL COP
KEYSTORE STEEL & WIRE CO
MICAULS WIRE & ALUMINUM CO
NOCTUMENTED SHEEL & WIRE CO
MICAULS WIRE & ALUMINUM CO
REVINED SHEELS COM
REVINED SHEELS COM
STEMESTEEL COM
TEMPORATE COMP
STEMESTEEL COM
TEMPORATE COMP
TEMPORATE Sheffeld Steel Curp TENNESSEE COAL INON & RAILHOAD CO wickwire Bros Inc Wilson Steel & Wire Co

NAILS, WALLBOARD

AMERICAN STEEL & WIRE CO Angell Nail & Chaplet Co COLUMBIA STEEL CO MASSALL (JOHN) INC Mase (W H) Co Maze (W H) Co Northwestern Steel & Wire Co REPUBLIC STEEL CORP Valentine Equipment Co

NAME PLATES

CORBIN (P & F) DIV | MERICAN HARD-WARE CORP LOCKWOOD HARDWARE MFG CO Turner Braze Works YALE & TOWNE MFG CO

NETTING, WIRE
AMERICAN STEEL & WIRE CO
Colorado Fuel & Iron Corp
COLUMBIA STEEL CO
CYCLORS FROM DIV AMERICAN STEEL CO
GILBERT & Bennett Mig Co
Indiana Steel & Wire Co
MING-States Steel & Wire CO
Northwestern Steel & Wire CO
Wickwise Steel & Wire CO
Wickwise Steel & Wire CO
Wickwise Steel CO

▶ NIPPERS

Champion-De-Armeni. Tool Co Damasens Steal Products Corp Lowe Mfg Co M & M Wire Clamp Co Peck Stow & Wilcox Co SED DEVIL TOOLS SANGENT & CO SHATE BOTHORN Bell Co Vaughan & Bunhnell Mfg Co

NOSINGS, METAL

ALLMETAL WEATHERSTRIP CO American Manon Safety Tread Co Ames Metal Moulding Co ARRISTORIC CORRESPONDED BLUM (JULIUS) CO INC READ MIT CO E 4 T METALS CO CECO STEEL PRODUCTS CORP CENTRAL METAL STRIP CO CHASE BRASS & COPPER CO Ford Metal Moulding Curp INLAND STEEL PRODUCTS CO Kinkead Industries Inc MACKLANBURG-DUNCAN CO MARSH WALL PRODUCTS INC Metal Trims MOORE (GOODLOE E) CO National Aluminum Co National Guard Products Penn Supply & Metal Corp-Potts-Farrington Co Protes Weatherstrip Mfg Co Pyramid Modldings Inc Safe Trend Co fe Tread Co PAUL CORRUGATING CO & W Moulding Co Trimedge Werner (B D) Co Inc Wheeling Corrugating Co Wheeling Corrugating Co Wheeling Correlating Co Wollacoper Steel Corp WOOSTER PRODUCTS INC Youngstown Mfg Co Inc

NOZZLES, HOSE

Allen (W D) Mfg Co Boston, Worten Hose & Bubber Co Durst Mfg Co Elkhart Brass Mfg Co Inc Farquhar (A B) Co Keystoso Brass & Bubber Co

Kraus (Walter S) Co Magnum Products Co Myers (F E) & Brotl Purposether Valuetes Co ther Ca enberthy Injector Constill Mfg Constill Mfg Constill Mfg Constill (D B) & Co

NUMBERS & LETTERS, LUMINOUS

Ellwood Co Greider (K H) Mfg Co Lumelite Corp
MACKLANBURG-DUNCAN CO
NUTONE INC
Nu View House Number me Number

NUMBERS & LETTERS. REFLECTING

Auto Sign Dimplay Co Down (S) Reflect Div Clayton Studios MACKLANBURG-DUNCAM CO

NUMBERS & LETTERS, TILE Cambridge Tile Mfg Co

NUMBERS & LETTERS, WOOD & METAL

& METAL
JAER Hardware Mig Corp
Champion Hardware Co
Choro Corp
Cicyton Studies
Cicyton Studies
Cicyton Studies
Consultation (P & P) DIV AMERICAN HARDMARE CORP
MARE CORP
MARE Corp
Fivale Engineent Co
Gits Micking Corp
Harris Inc
Harris Inc
Hollen (P & Co
Local Branch Mig Co
Irea (H B) Company
MARKLANEWSMG-GUHCAN CO
Matthews (James II) & Co
Matthews (James III) & Co MACKLAMBURG-BUNGAN CO Matthews (James II) & Co McKinney Mfg Co NATIONAL BRASS CO Nelson-Harkins Industries Norwalk Lock Co Div Segal Lock & Hardware

RUTERET INC.

Penn Hardware Company

Penna Products Div Chisshn-Ruder Co Inc.

RUSELL & Burris Div ABERICAN HARB
BRUIL Furniture Co Inc.

Safe Padiock & Hardware Co
Rager-Barrow Leck Works

SANGERT & CO

SANGERT & CO

SIgmanker Leck Co

Slaymaker Leck Co

Standard Bronze C STANLEY WORKS Wellman Products Co VALE & TOWNE MFG CO

**▶ OFFICE MACHINES &** EQUIPMENT

Addressograph-Multigraph Corp Alax Time Stamp Co Autographic Begister Co Berger Mfg Co Div Republic Steel Corp Burgess Co Inc Burgess Co Inc Burgens Co Inc
Burroughs Adding Machine Co
Calculagraph. Co
Elibert And Sc
Elibert Addressing Machine Co
Fertia Furnatum Mig Co
Fertia Furnatum Mig Co
Fertia Furnatum Mig Co
Heger Corp.
Laternatum Rauforem Machine Co
Heger Corp.
Laternatum Rauforem Machine Co
Mille Coloration Machine Co
Machine Machine Co
Maliculagraph Co
Machine Co
Maliculagraph Co
Fundaturagraph Machine Co
Northwest Metal Products Co
Onner Ragister Co
Fatent Novelly Co Inc
Resulted Machine Co Systems Dif Patent Novelty Co Inc. SMITH (L C) & CORONA TYPEWRITERS

INC
Speed-O-Print Corp
Standard Register Co
Thompson (O E) & Sons
Todd Co Inc
Tucker-Dorsey Mfg Corp

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Twentieth Century Products Inc UARCO Inc Underwood Corp Victor Adding Machine Co Waddell Co Inc

OIL, LEAD MIXING

Breinig Brothers Inc Eagle-Tucher Co Glidden Co National Lead Co Pubco Products Inc PITTSBUEGH PLATE GLASS CO

OIL, LINSEED

Archer-Daniels-Midland Co Bisser Linssed Co Chi-Namel Paint & Varnish Co be Mert & Bougherty Fuller (W P) & Co Gillesnie Varnish Co Gillenje Varnish Ce
IIIISKER CE
Gorden (George C) Chemical Ce
Harrison Pairt & Varnish Ce
Internate Oil Ce
Kellong (Spencer) & Sons Curp
Linsted Oil Pabolic'ts Ce
Minementa Linseed Oil Paint Ce
Mobile Paint Mig Co
National Lead Ce
PITTSBURGH PLAYE GLASS CB
Sthewire. Williams Ch Gillenge rer-Kellogg & Sons nical Oil Div South Tex Cotton Oil Co

POPENERS, CAR DOOR

OUTLETS, ELECTRIC

DOUTLETS, ELECTRIC
Arror—Bart & Begrana Electric Co
Arts Electrical Specialty Co
BABBER-GELBAN CO
BABBER-GELBAN CO
BOSTWICK STEEL LATS CO
BOSTWICK STEEL LATS CO
BOSTWICK STEEL LATS CO
CUITER-Banner In
BOUGHT BRUIGHT
BOUGHT BRUIGHT
GENERAL ELECTRIC CO
ELECTRIC CO
ELECTRIC CO
BOSTWICK STEEL LATS CO
ELECTRIC CO
ELECTRIC CO
BOSTWICK STEEL
BATTER
B

**DOVENS, ELECTRIC DRYING** 

Colloid Equipment Co Detroit Sheet Metal Works Grand Rapids Vapor Kiin Inc Moore Dry Kiin Co Trent Ené

DOVENS, OUTDOOR & DUTCH

Bonley Brothers
Glascock Stove & Mfg Co
Hancock Iron Works
Kraus (Walter B) Co
MAJESTIC CO MAJESTIC CO
Mexico Befractories Co
Outdoor Oven Fireplace Co
Poulsen & Nardon Inc
PRICE FIREPLACE HEATER & TANK CORP
Western Foundry Co

**PAILS** 

Aluminum Geods Mfg Cu Boller (Peter) Machine Works Boyle Mfg Co Cincinnati Galvanizing Co General Metalware Co Geuder Passchite & Frey Co Geoder Passechike & Frey Co Lidis-Ravory Corp Menashia Wooden Ware Co New England Wooden Ware Corp Reverse Steel & Mfg Co Richmond Codar Werlis Sexton Can Co Inc Vollrath Co Wheeling Corrugating Co White Mop Wringer Co

PAINT APPLICATORS. ROLLER, AIR PRESSURE

Brown (W R) Corp. Carlmon (A B) & Co. Central States Wallmaster Inc.

PAINT BRUSH PRESERVERS

Merryweather Products Co Wiscornin Laboratories Inc

PAINT SPRAY GUNS

Binks Mfg Co Black Mfg Co

Brown (W R) Corp Brunner Mfg Co Deming Co Devigibles Co Devoe & Raynolds Inc Electric Sprayit Co Empire Varnish Co-Hudson (H D) Mfg Co Lowell Mfg Co Homoo (N D) Mig Co Lowell Mig Co Mucleod Co Metallising Engineering Co Inc Passche Air Brush Co Pittsbungs Plate Class Co Portable Electric Tools Inc

#### PAINT STRIPERS

#### PAINT THINNER

A HANNAL PROMER NA Albastine Paris Products Div Chleago Breeze & Color Works American Marietta Co American Variant Co American Variant Co Beruita Brothers Inc Breinig Brothers Inc Co Colorado Palatt Co Deroc & Bayrolds Inc Co Dufford Polither Co Editor Marie Stores Co Elion Marie Stores Co Elion Marie Stores Co Elion Marie Stores Co Colorado Palatt & Varnish Co Elion Marie Stores Co Colorado Palatt & Co Inc Editor Marie Stores Co Colorado Palatt & Co Inc Forman Ford & Co Gilleenie Varnish Co Gildedon Co Gildedon Co Co Gillemie Varnish Co Gilden Co Gilden Co Gilden Co Gilden Co Gray (William 81 & Co Harrison Pania & Varnish Co Harrison Pania & Varnish Co Harrison Pania & Varnish Co Palvo Products Inc Palvo Products Inc Platt-Kote Inc Platt-Kote Inc Platt-Kote Inc Rockford Paint Mrg Co Standard Industrial Products Inc Valentine & Co Inc

### PAINT AND VARNISH RE-

me White Lead & Color Works merican Marietta Co-serican Varnish Co American Varnish Co Bengal Co Berny Brothers Ine Boston Varnish Co Boyer Chemical Laboratory Co Boyle-Midway Inc Briggs Marvney Co Inc Builders Products Residence in the Reside we Brothers Co Lowe Brothers Co Martin-Senour Co Masury (John W) & Son Inc Minnesota Paints Inc Murphy Paint Div Interchemical Corp Oakite Products Inc O'Brien Corp Patterney, Normal Co. Patterson-Sargent Co PITTSBURGH PLATE GLASS CO Pratt & Lambert Inc Pratt & Lambert Inc
Savogran Co
Schalk Chemical Co
Schalk Chemical Co
Schalk Chemical Co
Schalk Chemical Co
Schalk Corp
Sherwin Williams Co
Staclerote Mig Co
Tamma Industries Inc
Tamma Industries Inc
Tamma Contrive Inc
Tamma Co
Valentine & Co
Valentine & Co
Valentine & Co
Wilson Imperial Co
Wilson Imperial Co
Wilson Imperial Co
Wilson Imperial Co

#### PAINT AND VARNISH RE-MOVERS, ELECTRIC

Rarr (W M) & Co B & L Tool & Machine Co

PAINTERS, SCREEN Carloon (A B) & Co

#### PAINTING MACHINES. WOOD PICKET

Benes Schubert (M A) Co Woodworkers Tool Works

PAINTS, ACIDPROOF

Abesto Mfg Corp Boston Varnish Co Chicago Brouse & Color Works Devos & Earnolds Inc Du Pont (E I) de Nemoura & Co Elliott Paint & Varnish Co Glidden Co Horn (A C) Co Inc Lithogen Corp Lowebeo Inc Lowe Brothers Co MOORE (GOODLOE E) CO Nukem Products Corp O'Brien Corp Pabeo Products Inc Patterson-Sargent Co RUBEROID CO Subered to Co. Sapolin Paints Co. Inc. Scaboard Plastics Corp. Sherwin-Williams Co. Sonneborn (L.) Sons Inc. Spray-O-Bond Co. Steelcote Mfg Co. Sullivan Co.

#### PAINTS, ALUMINUM **BRONZE & GOLD**

Valentine & Co Inc Vita-Vas Corp Wilbur & Williams Co

Abesto Mfg Corp Aluminum Co of America Aluminum Industries Inc Aluminum Industries Inc Arcs Co Paint Co Inc Armsto Paint Co Inc Armsto Paint Co Co Chicago Painta Inc Cook Paint & Varnish Co Crescent Bronze Powder Co Devoe & Raynolds Inc Edgic-Picher Co Elliott Paint & Varnish Co FLINTROTE CO Glidden Co Glidden Ca Hoboken White Lead & Color Works Inc Horn (A C) Co Inc Illinois Bronze Powder Co Inc Horn (A C) to the Illinois Bronze Powder Co Ine Lockery Co Lowe Brothers Co Martin-Senour Co Massury (John W) & Son PITYSBURGW PLATE GLASS CD Seaboard Plastics Corp Seidlitz Paint & Varnish Co Sheffield Bronze Paint Corp Sherwin-Williams Co Science Francischer Francische

#### PAINTS, ASPHALT

Abesto Mfg Corp Akron Paint & Varnish Co American Asphalt Paint Co American Asphalt Boof Corp American-Marietta Co AMERICAN VARNISH CO ARMSTRONG CORK CO BUILDING NATE-RIALS DIV BARRETT DIV ALLIED CHEMICAL & DYE BARRETT DIV ALLIED CHEMICAL
CO Verrich Co
Boston Brothers Inc
CALBAR PARKT & VARMISH CO
CALBAR PARKT & VARMISH CO
CAREV (PHILIP) MFC CO
Creenti Materproding Corp
Chewestan-Elliot Inc
Chewstan-Elliot Inc
Day Chewstan-Elliot
Divide Inc
Divide Inc
Elliot
Chewstan-Elliot
Chewstan-E Elliott Faint & Varman C Evercrete Corp FLINTWOTE CO Ford Roofing Products Co Forman-Ford & Co Foy Faint Co Inc Gibson-Homans Co Glidden Co Harbil Mfg Co Inc Horn (A C) Co Inc Illinois Bronze Powder Co Lebon Co Murphy Paint Div Interchemical Corp. NATIONAL GYPSUM CO O'Brien Corp. O'Brien Corp.
Palco Products Inc
Parker (Ira) & Bons Co
Pecora Paint Co Inc
Pittsbungh Plate Glass Co Quigley Co Inc Rogers Paint Products Inc RUBERGID CO Scaboard Plastics Corp

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Seidilta Paint & Varnish Co Sicca Soya Paint Co Inc Shewin-Williams Co Spray-0.Bond Co Steelcote Mfg Co Spray-O Bone Riceleote Mig Co TEXAS CO Truscon Laboratories Div Devoe & Raynolds Co
Twentieth Century Paint & Varnish Corp
United Gilmonite Laboratories
U S Gutta Pereha Paint Co
Verlex Bales Co Inc
Vita-Var Corp
Without & Williams Co

#### PAINTS, AWNING

Astrup Co
CUPRINGL DIV DARWORTH INC.
Deros & Raynolds Inc
King (E & F) Co Inc
Paleo Products Inc Patro Products Inc
PITTSBURGH PLATE GLASS CO
Textile Colors Div Interchemical Corp.

#### PAINTS, CEMENT

Armor Laboratories Breinig Brothers Pratt & Lambert Inc Spray-0-Bond Co UNIVERSAL ATLAS CEMENT CO

#### Sullivan Co Truscon Laboratories Div Devoe & Raynolds PAINTS, COLDWATER & CASEIN

CASEIN

CASEIN

ACTOR

ACTOR I S Gypsum Co Vita-Var Corp Wesco Waterpaints Inc Wilbur & Williams Co Woodville Lime Co

#### PAINTS, CONCRETE, BRICK, STUCCO

STUCCO
Abesto Mig Corp
Acese Withe Lead & Color Works
Acron Paint & Varnish Co
Alabastine Paint Products Dir Chicago Brooms
& Color Works
American Fluresit Co Inc
American Painterica Co
Armor Laboratories
Armesto Paint Co Inc
Beatter Plaster Co
Blue Ridge Tale Co Inc
Boston Varnish Co
Butter Plaster Co
Boston Varnish Co
Butter Plaster Co
Catago Campan (A) Co
Catag Celladri Corp
Cennis Co
Cerascal Chemical Corp
Cerascal Chemical Corp
Cerascal Chemical Corp
Chesseman Elliot Co Inc
Chesseman Elliot Co Inc
Coddington (E D) Mfg Co
Colorrerie Industries Inc
Capract Hea
Capract Hea
Du Pont (E I) de Nemoura & Co Ins
Elliott Paint & Varnish Co
Empire Varnish Co Elliott Paint & Varsion Co Empire Variation Co Everertee Corp Everertee Corp Flore (M. Eving) Co Inc Flore Corp Flore (M. Eving) Co Inc For Paint Corp General Paint Corp Glidden Co Harbill Mfg Co Inc Hobbern White Lead & Color Works Inc Johnston (R. F.) Paint Co

HAY-TITE CO Keystone Paint & Varminh Corp Lasting Products Co Lithogen Corp Lowebco Inc Lowe Brothers Masury (John W) & Son Inc MEDUSA PORTLAND CEMENT CO Minnesota Paints Inc Moore (Benjamin) & Co Manue (Guenlan Es Co Muraio Co Inc Murphy Paint Die Interchemical Corp MATIGNAL CYPEUM CO
O'Brien Corp
O'Brien Corp
O'Brien Corp
O'Brien Corp
O'Brien Corp
Patternon-Sagnet Co
Perleas Cement. Corp
Perleas Cement. Corp
Perleas Corp
O'Brien Corp
O'Brien Corp
O'Brien
O'Bri Prima Products Inc Beardon Co Bactond Products Co Robloff & Co Sciditz Paint & Varnish Co Sedditz Paint & Varnish Co Shrevin-Williams Co Smooth-On Mfg Co Sonochen Cl.) Sens Inc Spray-0-Bond Co Spray-0-Bond Co Stray-0-Bond Co Stray-0-Bond Co Stray-0-Bond Co Stray-0-Bond Co Stray-0-Bond Co Stray-0-Bond Co Surface Protection Co Tamini Industries Inc Tailwilly Portland Cement Div Gen-ERAL PORTLAND CEMENT CO Truscon Laboratories Div Devoc & Raynolds Inc U S Gypsum Co Vita-Var Corp Vorlac Co Waterlox Div Empire Varnish Co Wesco Waterpaints Wilbur & Williams Co WURDACK CHEMICAL CO

#### PAINTS, CREOSOTE Devoe & Raynolds Inc

PAINTS, DDT SONOCO PRODUCTS CO

#### PAINTS, DRY KILN

American Varnish Co Black Cat Corp Breinig Brothers Inc Devoc & Raynolds In Dewatex Mig Corp Harbil Mig Co Inc Harbil Mfg Co Inc
Horn (A.C.) Co Inc
Mobile Paint Mfg Co
Mobile Paint Mfg Co
Murphy Paint Dir Interchemical Corp
Parker Iral & Rons Co
PITSBURGH PLATE GLASS CO
FLOORING PLATE GLASS CO
FLOORING PLATE GLASS CO
FLOORING PLA

#### PAINTS, FUNGUS REPELLING

Abesto Mfg Corp CUPRINGL DAY BARWBRIN INC Deroe & Baynolds Inc Du Pont (E I) de Nemours & Co Inc Elliott Paint & Varnish Co Glidden Co Horn (A C) Ce Inc Glidden Co Horn (A C) Co Inc Lowe Brothers Co Meta-Kote Corp O'Brien Corp Patterson-Sargent Co PITTSBURGH PLAYE GLASS CO Sherwin-Williams Co Truscon Laboratories Div Devoe & Reynolds Co Vita-Var Corp Williams Co Wood-Treating Chemicals Co WURDACK CHEMICAL CO

#### PAINTS, INSECT KILLING Superior Paint & Varnish Works

PAINTS, LEAD

P PAINTS, LEAD

Arms White Lead & Color Works

Akron Paint & Varnish Co

American Varnish Co

American Varnish Co

Breinig Brothers Inc

Briggs Marrowy Co Inc

Cheeseman-Elliot Co Inc

Devented Mr. Goric

Gillessie Varnish Co

Gillessie Varnish Co

Harbill Mrg. Co Inc

Inalud White Lead Co

Murphy Patht Dov Interchemical Corp

O'Brien Corp

Parier (Ira) & Sons Co

Pratt & Lambert Inc

Preservative Paints Co

Rockford Paint Mfg Co Sellers Paint & Varnish Co Sonneborn (L) & Sons Inc Twentieth Century Paint & Varnish Corp

PAINTS, LEAD IN OIL

Acme White Lead & Color Works Arnesto Paint Co Inc Boston Varnish Co Devoe & Baynolds Inc Eagle-Picher Co Elliott Paint & Varoish Co Glidden Co Hoboken White Lend & Color Works Horn (A C) Co Inc Hoboten White Lead & Coler Works
Horn (A C) Co Ine
Love Brothers Co
National Lead Co
Palice Fredients like
PITTSBURGH PLATE GLASS CB
Stelfills Paint & Varnish Co
Stevenin-Williams Co
Valentine & Co Ine
Villa-Var Comp

#### PAINTS, LUMBER END CHECK DEGRADE

CHECK DEGRADE
Alton Paints & Varnish Co
Black Cat Corp
Black Cat Corp
Black Cat Corp
Berling Brothers Inc
Devos & Baynolds Inc
Brother Corp
Felton Shipt & Co
Minnesota Lineed 6tl Paint Co
Moore Dry Kiln Co
O'Brien Corp
Parker (Irn. & Varnish Co
Twentieth Corp. Warnish Corp.
US Gutta Percha Paint Co
Vita-Var Corp.

PAINTS, MARINE

Acme White Lead & Color Works

Akron Paint & Varnish Co

Boston Varnish Co

Cheeseman-Eillot Co Inc

Du Font (£ 1) de Nemoura Co Inc

Bagile Pitte & Co Inc

Forman-Ford & Co

General Paint Corp

Gilldein Co

Gildden Co

Gildden Co General Paint Corp
Glibogie Varaish Co
Glibogie Varaish Co
Harbil, Mfg Co Ine
Harbil, Mfg Co Ine
Harbil, Mfg Co Ine
Lowe Brothers Co
Lears (John) & Co Ine
Lowe Brothers Co
Lears (John) & Co Ine
Minnesota Paints Inc
Minnesota Paints Inc
O'Brien Corp
Palor Products Inc
Parker (Ora) & Sono Co
Patert (Ira) & Sono Co
Patert (Ira) & Sono Co
Patert Koto Ine
Farker (Ira) & Sono Co
Patert Koto Ine
Sargent-Gerte Co
Seeditiz Paint & Varnish Co
Enervilliams Co
Valentine & Co
Val

PAINTS, METALLIC PAINTS, METALLIC
ARVEN PAINT & Varnish Co
Alabastine Paint Producta Div Chicago Bronze
& Color Worker
Aluminum Industries Inc
Aluminum Industries Inc
American Varnish Co
Breinig Brothers Inc
Calada Paint & Varnish Co
Chi-Vamel Paint & Varnish Co
Chi-Vamel Paint & Varnish Co
Commonwealth Varnish Co
Deros & Barrolds Inc
Deros & Barrolds Inc
Elliott Paint & Varnish Co
Elliott Paint & Varnish Co
Elliott Paint & Varnish Co
Fetton Ribbey & Co Inc
Forman-Food & Co
Gilleopie Varnish Co
Gilleopie Co General Paint Corp
Gilliagia Varnità Ca
Gilliagia Varnità Ca
Gilliagia Varnità Ca
Harbil Mfg Ca
Harbil Mfg Ca
Miniscode Rivel Ca
Miniscode Rivel Ca
Murphy Paint Dir Interchemical Corp
Faboo Products Iona Co
Parier (Ira) & Sono Co
Parier Ca
Paint Acto Los
Paint Ca
Parier Ca
Paint Co
Parier Ca
Par

Siedlitz Paint & Varnish Co Sonneborn (L) & Sons Inc Standard Industrial Products Inc Steelcote Mig Co Twentieth Contury Paint & Varnish Corp United Gilbonite Laboratories U & Gutta Percha Paint Co Valentice & Co Inc Vita-Var Corp

PAINTS, OIL

Abesta Mfg Corp.
Acme Gmilty Fulnit Color Works
Akron Paint & Varnish Co.
Although the Varnish Co.
Alabastine Paint Products Div Chicago Bronzo
& Color Works
American. Marietta Co.
American. Ararish Co. American Yarnish Ca
Arros Co
Arros Train Patric & Varnish Werks
British Co Inc
Breing British Co Inc
Brother British Co
Breing Brothers Inc
Bridge & Vivonian Co
Breing Brothers Inc
Cabb (SaMuel) 18C
Central Paint & Varnish Works
Chicago Paints Inc
Chicago Paints Inc
Cook Paint & Varnish Co
Cook Paint & Varnish Co
Dolphin Paint & Varnish Co
Dolphin Paint & Varnish Co
Brother & Rannish Go
Brother & Co
Cook Paint & Varnish Co
Dolphin Paint & Varnish Co
Elliost Paint & Varnish Co
Felton Sibley & Co
Felton Sibley & Co
Felton Sibley & Co
Felton Sibley & Co
Felton Go
Felton Sibley & Co
Felton Go
Felton Sibley & Co
Felton Go
Gilledon Co
Gillidon Co General Paint Cop
General Paint Cop
Glastic Cop
Harrison Paint Mrg Co
Heath & Milligan Mrg Co
Heath & Worsho Co
Johnston (R F) Paint Co
Cop
Heath & Varnish Co
Heath Co
Johnston (R F) Paint Co
Lucas (John) & Co
Masury (John W) & Ron Iae
McClosley Varnish Co
McMurtry Mrg Co
Mrg Co
Mrg Co
Mrg Co
Rate Co
Pratt & Lambert Inc
R Louis Rurracer & Paint Co
Sapolin Paints Inc
Standard Varnish Co
Strelle Paint & Varnish Co
William Co
Willelm (A) Co
Willelm (A) Co
William Co
Willia PAINTS PLASTER

Alton Laboratories Bro-Ca-De Inc Enterprise Paint Mfg Co Giastic Corp Lowebes Inc MATIONAL GYPSUM CO Bustilos Co

Sicca Soya Paint Co Int Tunma Endputries Int Wesco Waterpaints

PAINTS, PLASTIC

GENERAL ELECTRIC CO CHEMICAL DEPT Plasti-Kote Inc

PAINTS, RUBBER BASE

Truncon Laboratories Div Devoc & Raynolds

PAINTS, SYNTHETIC RESIN

Armsta Paint Co Inc
lieston Varnish Co
Cello Finatic Chemical Co
Devos & Rayroldo Inc
Devos & Rayroldo Inc
Di Post (E I) de Nemours & Co Inc
Glidden Co
Horn (A C) Co Inc
Ellinatis Risman Piwder Co
Krystone Paint & Varnish Corp
Love Brothers Co
Bartin-Semon Co
Bartin-Bartin-Bartin-Bartin-Bartin-Bartin-Bartin-Bartin-Bartin-Bartin-Bart MIRACLE ADHESIVE CORP NATIONAL GYPSUM CO Palies Products Inc PITTSBURGH PLATE GLASS CO Reardon Co Sherwin-Williams Co Vi S Gypsum Co Valentine & Co Inc Verfex Raice Co Inc Vita-Var Corp Wesco Waterpaints Inc Wilbur & Williams Co

#### PAINTS, TEXTURE

owelico eardon Co amma Industries Inc S Gypnum Co fenco Waterpaints Inc

PANELWORK, HARDWOOD

American Pipwood Corp
BRADLEY LUBBER C0 0F ARK
CARR ADAMS & COLLIER C0
CURTIS C05 NM
FAIR (0 L) LUBBER C0
FAIR (0 L) LUBBER C0
FAIR (0 L) LUBBER C0
Fordy-C-Tomest' Lamber Co
Front Lumber Industries Ind
Geought-Pacific Pipwood & Lumber Co MENGEL CO RODDIS PLYWOOD CORP Twin City Hardwood Lumber Co

PANELWORK, SOFTWOOD

Actor Plymod & Veneer Co BRADLEY LUMBER CO OF ARK CARR ADAMS & COLLIER CO CROSSETT LUMBER CO CHRISTO CS. SINCE FAIR ID & LUMBER CO FAIP & Lockeler Mig Co Protipe-Crosset Lumber Co Grotis-Pacific Plymod & Lumber Co M & M Woodworking Co Southern Lumber Co WEYERMAEUSER SALES CO

PAPER, ASBESTOS

A THE BY A JOE 1 US Acce Adventor Covering & Floering Co CAREY (FRILIP) MFG & Floering Co CATES Adventor to Elvet Magnesia Mig Co Inc JOHNES-MARVILLE CORP REASERY & MATTISON CO PROFICE USE APPERS INC NIL MOUNTAIN CO Standard Adventor Mig Co Thilmany Pulp & Paper Co

PAPER, BUILDING

Seaboard Plastics Corp SiSALKRAFT CO Thilmany Pulp & Paper Co

American Amhalt Roof Corp BARRETT DIV ALLIED CHEMICAL & BYE GARRETT DIV ALLIED DERENDE CR. 1981 NC FG CO CRE 1981 NC FG CO CEGO STEEL PRODUCTS OB PC CEGO STEEL PRODUCTS OB CEGO STEEL PRODUCTS OF CE Presitite Engineering Co PROTECTIVE PAPERS INC Raiston (W) & RICHKRAFT CO RUBERRID CR

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

PAPER, BUILDING, REIN-

U S Grpoum Co Welt & Sons Paner Co

FORCED, WATERPROOF

Angler Corp BIRD & SON INC Bonafide Mills Inc CERTAIN-TEED PRODUCTS COMP Ford Reeding Products Inc. HOSKING PROPER OF JOHNS-MANVILLE CORP PROTECTIVE PAPERS INC BICEKRAFT CO SISALKBAFT CO

#### PAPER, CONCRETE CURING

igler Corp.
Isking Paper Co.
Irretone Asphalt Products Co. Presstite Engineering Co PROTECTIVE PAPERS ING RICHKRAFT CO RUBERGED CO SISALKRAFT CO

PAPER, COPPER ARMORED

Angier Corp. CHASE BRASS & COPPER CO. RICHKRAFT CO SISALKRAFT CO Wasco Flashing C

PAPER, SILO LINER

Angier Corp BARRETT DIV ALLIED CHEMICAL & BYE CORP Ford Roofing Products Co Keystone Asphalt Products Co Pressitie Engineering Co PROTECTIVE PAPERS INC RICHKRAFT CO BUBEROID CO SISALKBAFT CO Thilmang Pulp & Paper Co

PAPER, STACK COVER PROTECTIVE PAPERS INC RICHKRAFT CO SISALKRAFT CO

PARTITIONS, FOLDING

Curtition Co HOLCOMB & HOKE MFG CO INC HOUGH SHADE CORP International Steel Co NEW CASTLE PRODUCTS CO ONCHARD BRETHERS RICHARDS-WILCOX MFG CO

PARTITIONS, GLASS, STRUCTURAL

Apex Brass & Brunze Works LIBSEY-SWEN-FORD CLASS CO Pennsylvania Wire Glass Co PITTSBURGH PLATE GLASS CO

PARTITIONS, OFFICE, HARD-MOOD U S PLYWOOD CORP

PARTITIONS, SIDE ROLLING

PARTITIONS, STEEL

Alabama Metal Lath Co
Armon Drainage & Metal Products Inc
Berger Mig Co Div Sepublic Steel Curp
FIRESTER BUILDING PRODUCTS
Goldmith Metal Lath Co
GREAT LAKES STEEL COMP STRAM-STEEL
DIV

Hauserman Co INLAND STEEL PRODUCTS CO Macomber Inc Mahon (R C) Co Martin-Parry Corp Mille Co
Milwaukee Stamping Co
MATIGMAL GYPSUM CO
Penn Metal Co Inc
Steel Product Inc
Steel Partitions Inc
TRUSCOM STEEL CO
I'll Gypnum Co
Weie (Henry) Mig Co
Wheeling Corrugating Co

PARTITIONS, TOILET

All Metal Partition Co 1

PARTITIONS, WIRE Cyclone Fence Div American Steel & Wire Co Logan Co Meyers (Fred L) Mfg Co Stewart Iron Works Co Inc

#### PARTITIONS, WOOD, FIBER, GYPSUM, OTHER COMPOSI-TIONS, MATERIALS FOR

of America Div Harbonsister Inc CELOTEX CORP
CERTAIN-TEED PRODUCTS CORP
JOHNS-MANVILLE CORP
Macomber Van Macomber Inc MATIONAL SYPSUM CO

#### PATCHING, WALL Devos & Raynolds Inc.

**▶ PATTERNS, HOBBYCRAFT** East-Sild Pattern Co U-Sild Enterprises

#### PASTE, WALLPAPER

Commercial Paste Co Consumers Glue Co Crescent Products Co Devoe & Raynolds Inc Fuller (E B) Co Hayes Adhesive Le Page's Inc. Paintey Product es Co ducts Inc Patent Cereals Co PITTSBURGH PLATE CLASS CO Sisk (R J) Co Tamms Industries Inc Wesco Waterpaints Inc

#### PENCILS, CARPENTERS'

Blaistell Pencil Co Milabell Fencil To Cupples Co Dictagen (Fugene) Co Dictagen (Fugene) Co Dictage Fencil Co Eagle Fencil Co Economy Nevelly & Frining Co Economy Nevelly & Frining Co Kept-Fit & EssEm Col Kob-I-Noor Pencil Co Murply (Thomas D) Co Benco Benco Shedd-Brown Mfg Co WMITE (DAVID) CO

#### PENCILS, DRAFTING

Eberhard Faber Pencil Co

#### PENCILS, PRICE MARKING

#### **▶ PERLITE PROCESSING** PLANTS

Johnston Mfg Co Muchleisen Perlite Process Int Page Convertor Co

#### **PILING**

Armeo Drainage & Metal Products Inc

## PIPE, ASBESTOS CEMENT

#### PIPE BENDERS

American Pipe Tool Co Crown Die & Tool Co Greenlee Tool Co Martin (H P) & Sons Skinner (M B) Co

#### PIPE, CAST IRON, SOIL & FITTINGS

Anniston Soil Pipe Co Brady Conveyors Corp Byers (A M) Co CRANE CO Eastern Foundry Co Industrial Iron Works Medina Iron & Bram Co Eura (J A) Mfg Co

#### PIPE, CLAY, SEWER

Acme Brick Co Agate Sewer Pipe Co American Vitrified Producta Co Blackmer & Post Pipe Co Bowerston Shale Co California Pottery Co Cannolton Sewer Pipe Co

Carry Briek Co
Clark (N) & Some Dir Paulie Clay Products
Clar Clay Pipe Co
Clar Clay Pipe Co
Clar Clay Products
Ca
Denninon Seever Pipe Corp
Denner Seever Pipe & Clay Co
Dickey (W S) Clay Ming Co
Excens Products
Co
Evens & Howard Seever Pipe Co
Gladding-McBean & Co
Lowa Pipe & Tile Co
Lowa Clay Products Co
MATIGNAL CLAY PIPE #F#B INC
National Filespronding Co
Overnboro Rever Pipe Co
Pacific Clay Products
Patton Clay Ming Co
Price Hail Brick & Pipe Co
Pacific Clay Products
Patton Clay Ming Co
Pice Mail Brick & Pipe Co
Robinson Clay Products
Co
Robinson Robinson Clay
Robinson Clay Products
Co
Robinson Robinson Clay
Robinso

#### ▶ PIPE, CONDUCTOR, EAVES TROUGH

Alabama Metal Lath Co Ames (W B) Badger Corrugating Co Berger Mfg Div Republic Ames (W R)
Badger Corrugating Co
Berger Mig Div Republic Steel C
CECO STEEL PRODUCTS CORP
CHASE BRASS & COPPER CO
Edwards Mig Co
Husney (C G) & Co
Husney (C G) & Co
Husney (C G) & Co Homey (C G) & Co
Illinois Zinc Co
Illinois Zinc Co
INLAND STEEL PRODUCTS CB
Klazer Mig Co
La Crosso Steel Booding & Corrugating Co
La Crosso Steel Booding & Corrugating Co
La Crosso Steel
Mid-States Steel & Wire Co
New Orleans Booding & Metal Co
New Orleans Metal Co
New Orleans Booding & Metal Co
New Orleans Booding & Metal Co
New Orleans Booding & Metal Corp
Pents Supply & Metal Corp
Revers Steel & Mife Co POLLE-PARTINGTON TO
REVENUES METALS CO BUILDING PROSUCTS DIV
ST PAUL CORNUGATING CO
Tiffin Art Metal Co
L'OLD States Steel Co
Whetling Commanding Co
York Corngasting Co
York Corngasting Co

## PIPE, CULVERT, IRON &

American Rolling Mill Co Armoo Drainage & Metal Products Inc Beall Pipe & Tank Corp Industrial Iron Works Namuort Steel Corp Newport Steel Corp REPUBLIC STEEL CORP ST PAUL CORRUGATING CO UNITED STEEL FABRICATORS INC.

### PIPE, FIBER CONDUIT

BROWN CO BERMICO DIV Orangeburg Mfg Co SONOCO PRODUCTS CO

#### PIPE JOINT SEALING COM-POUNDS

Anti-Bydro Waterproding Co Arco Co Common Co Horn (A C) Co JOHNS-MAMVILLE CORP Kepstone Asphalt Products Co Koppers Co Ine Tar Products Div Lake Chemical Co Pecora Paint Co Ine Presentie Engineering Co Reilly Tar & Chemical Corp Republic Cressoling Co Robinson Clay Froduct Co Sauereisen Cements Co

SERVICISE 9 PRODUCTS CORP Sullivan Co E-Pando Cory

## PIPE, SIWER, BITUMINIZED

BROWN CO BERSICO DIV Orangeburg Mifg (to Inc. SONOCO PRODUCTS CO

#### PIPE, SEWER, CONCRETE

American Vitrifier Preducts Co Universal Concret: Pipe Co Inc

#### PIPE, STEEL

F FIFE, JHEEL
Alleghery Ladium Steel Corp
Alleghery Steel To
Armoo Drainage & Metal Producta Ine
Beall Pipe & Trait Corp
Beall Pipe & Trait Corp
Beall Pipe & G
Dempiter Mill Mig Co
Dempiter Mill Mig Co
Jones & Laughill Sizel Corp
LACLES STEEL CO
National Trait Co Reeves Steel & Mfg Co Wheeling Steel Corp Youngstown Steel Products

#### PIPE, STEEL GALVANIZED

American Bolling Mill Co BAMBRICK (RICHARD J) SAMBRICK (RIGHARD ))
Bethlebem Steel Ce
Joses & Laughlin Steel Carp
National Tube Co
REFUBLIC STEEL CORP
UNITED STEEL FABRICATORS INC
Wheeling Steel Carp
Toungstown Sheet & Tube Co

#### PIPE THREADERS

American Die & Tool Co Int , Bearer Pipe Tools Inc Landis Machine Co Nye Tool Co Ridge Tool Co Thread-Eng Mfg Co Tolodo Pipe Threading Machine Co

#### PIPE WOOD

Arrive Table Co Inc
Ballimore Coperago Tank & Tower Co
CALDWELL (W E) Cd
CACDWELL (W E) Cd
Cappar Lumber
A & M Woodworking Co Rosspress Div
Pacific Wood Tank Corp
Williamette Valley Lumber Co
Wyckoff (A) & Son Co

#### PIPE, WROUGHT IRON

Armeo Drainage & Metal Products Inc Beall Pipe & Tank Corp Byers (A M) Co Byers (A M) Co CRAME COMPANY Decatur Jron & Steel Co Dempster Mill Mfg Co McDonald (A Y) Mfg Co McDonald (C STEEL CORP The Chapter Tuber Co

#### PIPE & TUBING, ALUMINUM

Revere Copper & Bram Inc REYNOLDS METALS CO BUILDING PROB-

#### PIPE & TUBING, BRASS & COPPER

Bridesport Brass Co CARÁE BRASS & COPPER CO Mueller Brass Co Bereve Couper & Brass Ins Scortil Mig Co Wolverine Tube Dir Calumet & Hede Con-solidated Copper Co

#### PIPE & TUBING, PLASTIC

rican Extruded Products Cu riine Inc on Products Corporation Amerine inc Carlon Products Corpo Detroit Macoid Corp Extraded Plastics Inc Goodrich (B F) Co Hodgman Rubber Co Johnson Plastic Corp Monsanto Chemical Co Raybestos-Manhattan Inc Manhattan Rubber Div Superior Plastics Div Commonwealth Plastics Inc

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### ▶ PLANERS

American Baw Mill Machine Co BELSAW MACHINERY CO BOICE-GRANE CO Duro Motal Products Co Butte-Grant Co Duro Motal Products Co Greenlee Tool Co PARKS WOODWORKING MACHINE CO Power King Tool Corp BOCKWELL BFG CO BELTA POWER TOOL DIV STANLEY TOOLS DIV STANLEY WORKS WALLACE (J D) & CO WHITNEY (BAXTER D) & SONS INC Tyles American Machine Co

#### **PLANES**

Capewell Mfg Co MALL TOOL ED Millers Valla Co Millers Fails Co
Peck Stow & Wilcox Co
PORTER-CABLE MACHINE CO
SARGENT & CO
STANLEY WORKS TOOL DIV
Vaughan & Bushnell Mfg Co

### PLANKS, ASPHALT

CAREY (PNILIP) WFG CO Keystone Asphalt Products Co PROTECTIVE PAPERS INC SERVICISED PRODUCTS CORP

#### PLANKS, EXTENSION

Babcock (W W) Co Bauer Mfg Co Breyer Brothers Whiting & Co Clark (J R) Co Goshen Mfg Co Howard Mfg Co Plastergen Wall Board Co Tilley (John S) Ladders Co Woodenware Products Corp

#### PLANKS, FIBER, INSULATING

ARMSTRONG CORK CO BUILDING MA-TERIALS DIV CELOTEX CORP Durinol Inc ing Board Co FIN-Tex Insulating Board Co FILINTKOTE CO MINNESSTA & ONTARIO PAPER CO JOHNS-MANVILLE COBP MATIGNAL GYPSUM CO SIMPSON LOGGING CO U.S. GYPSUM CO WOOD CONVERSION CO

#### PLANKS, GYPSUM

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP NATIONAL GYPSUM CO U S Gypsum Co

#### PLAN, SERVICES

PLAN, SERVICES
All Climates Plan Book agency
Anchitectural Plan Service Ine
Brown-Blodgett. Co
Building Products Merchandising Service
Continental Steel Corp
Building Products Merchandising Service
Continental Steel Corp
Easi-Bild Pattern Co
GARLINGONUSE (C) CO
Home Planners Inc
Home of the Week Plan Service
Martin (S Clyde)
McLure & Co
Martin (S Clyde)
McLure & SIMMONS-BOARDMAN PUB CORP Southern Plans Co Standard Homes Co U-Build Enterprises United Home Building Plan Service Universal Plan Service

#### PLANS, HOUSE, IN BOOKS

Cleveland Publications GARLINGHOUSE (L F) CO Home Building Plan Servi Home Plan Book Co Housing Plan Service Inc Martin (8 Clyde) National Plan Service Inc SIMMONS-BOARDMAN PUB CORP WEVERNAEUSER SALES CO

## PLANTS, HOT WATER,

Hoock & Ackerman Inc

#### PLASTER, ACOUSTICAL

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP GREAT LAKES CARBON CORP KEASBEY & MATTISON CO Kelley Island Lime & Transport Co

Nelson (B F) M/g Co Schundler (F E) & Co Inc Sealton Products Inc Scalton Products Sullivan Co Tamme Industries Inc U S Gypsum Co Western Mineral Products Co 2000LITE CO

#### PLASTER, ASBESTOS KEASBEY & MATTISON CO

PLASTER, BONDING MATIONAL GYPSUM CO NU-WALL MFG CO

#### PLASTER, CASTING

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP NATIONAL CYPSUM CO

### PLASTER, CEDAR

Coddington (E D) Mfg Co Mineral Pigments Corp Turms Industries Inc

#### PLASTER, FIBERED

ELDE THEMMORY COPP CERTAIN-TEED PRODUCTS CORP-Condington (E D) Mfg Co Fairmont Wall Plaster Co Grand Rapide Plaster Co Guif States Gypoun Co Ideal Coment Co Colorado Portland ado Portland Div Ideal Cement Co Colorado F NATIONAL GYPSUM CO Ohio Hydrate & Supply Co Pacific Portland Cement Co Sealcon Products Inc 8 Gypsum Co oodville Lime Co

## PLASTER, FINISHING.

Beautex Planter Co Biose Diamond Corp CELOTEX CORP Caddington (E D) Mfg Co Coddington (E D) Mrg Co Grand Rapids Planter Co MATIGNAL CYPSUM CO Ohio Hydrate & Supply Co Penn Crete Products Co Sealcon Products Inc Tamms Industries Inc S Gypoum Co codville Lime Co

#### PLASTER, FINISHING, MOULDING, GAUGING

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP Grand Rapids Plaster Co MATIONAL GYPSUM CO National Morter & Supply Co Nu.wAll. MFG CO Ohio Hydrate & Supply Co Pacific Portland Cement Co & Gypsum Co

#### PLASTER, GYPSUM

Alabattine Paint Products Blue Diamond Cong CELOTEX CORP CERTAIN-TEED PRODUCTS CORP Crand Ranids Plaster Co Gulf States Gypsum Co NATIONAL GYPSUM CO Pacific Portland Coment Co Pacific Portland Cement Scalison Products Inc Yamma Industries Inc U S Gypsum Co

#### PLASTER, INSULATING

CELOTEX CORP GREAT LAKES CARBON CORP BUILDING PREDECTS DIV Mikolite Salen Corp MATIGNAL CYPSUM CO Schundler (F.E.) & Co Inc Sealcon Products Inc Rno-Lite Products En 20NOLITE CO

#### PLASTER, LIME

CELOTEX CORP Grand Rapids Plaster Co. Grand Rapids Planter Co Kelley Island Lines & Transport Co NATIONAL CYPSUM CO NATIONAL GYPSUM CO Ohio Hydrate & Supply Co Ohio Hydrate & Supply Co Swalence Products Inc U 8 Gypnum Co Woodville Lime Co

#### PLASTER, PATCHING

Alabastine Paint Products Div Chicago Bronne & Color Works American Flurreit Co Inc CENTAIN-TEED PRODUCTS CORP

Chicago Bronze & Color Works Coddington (E D) Mfg Co Chicago Bronze & Coller Works
Coddington LE D) MNy Co
Consumers Gine Co
Consumers Gine Co
Consumers Gine Co
Consumers Gine Co
Courtle Mny & Abbotton Co
Fuller (H B) Co
Grand Rapids Filtuary Co
Hayes Adhestors Co
Hayes C
Hayes C U S Gypsum Co Wesco Waterpaints Inc X-Pando Corp

#### PLASTER RETARDERS

RELOTEX CORP NATIONAL GYPSUM CO

#### ► PLASTERBOARD

ARMSTROME CORK CO BARRETT DIV ALLIED CHEMICAL & DYE CORP Blue Diamond Corp CLEATER CARP CERTAIN-TEED PRODUCTS CORP Grand Rapids Plaster Co NATIONAL SYPSUM CO Paleo Products Inc U S Gypsum Co

#### PLASTER OF PARIS

CERTAIN-TEED PRODUCTS CORP Grand Rapids Plaster Co BATIEBAL EXPESS ES Chia Rydrate & Supply Co Ohio Hydrate & Supply Tamma Industries Inc U S Gypsum Co

#### PLASTIC LAMINATES

Actna Plywood & Vencer Co ARSORITE CO LTD Bakelite Corp.
Coddington (E D) Mfg Co
Consolidated Water Power & Paper Co CONSOLUZIONE WARE FORCE E ALLE CONTINUENTE CAN CONTINUENTE CAN CONTINUENTE CONTIN Milwaukee Plywood Co NATIONAL PLASTIC PRODUCTS CO ONIO RUBBER CO Parkwood Corp RODDIS PLYWSOO CORP RODDIS PLYWSOO CORP St Paul & Taroma Lumber Co St Regis Paper Co U S PLYWOOD CORP WESTINGHOUSE ELECTRIC CORP WOODALL INDUSTRIES INC

PLASTIC, WATERPROOF Abesta Mfg Co American Fluresit Co Anti-Hydro Waterproofing Co Anti-Hydro Waterproofing Co-BIED & SON FLINTMOTE CO FORMICA INSULATION CO Horn (A C) Co Inc Lebon Co Lenon Co Sonneborn (L) & Sons Inc Superior Plastics Div Commonwealth Plastics Inc Technical Supply Co X-Pando Corp

#### **PLIERS**

FULEN
Barcalo Mig Co
Bridgeport Hardware Mig Corp.
Crescent Tool Co
Graham (John H) & Co
International Twist Brill Corp.
Klein (Hathias) & Sons
P & C Hand Forced Tool Co
Peck Riow & Wilena Co
RED BEYL TOOLS
SARGENT & CO

#### PLUMB BOBS

Brown & Sharpe Mfg Co. Dietzgen (Eugene) Co GOLDBLATT TOOL CO KEUFFEL & ESSER CO

#### PLYWOOD, DOUGLAS FIR

Aberdeen Plywood Corp Actna Plywood & Veneer Co Albany Plywood Corp

American Plywood Corp Am-Mex Sales Co Anacortes Veneer Ind ASSOCIATED PLYWOOD WILLS DEC ASSOCIATED PLYWOOD MIL Autoria Plywood Corp ATLAS PLYWOOD CORP Bellingham Plywood Co Inc California Venere Co Calgella Plywood Co Calgella Plywood Co Calgella Plywood Co Cangella Plywood Co Cascades Plywood Co Cossata Plywood & Lumber Co Cossata Plywood Co Cossata Plywood Co Cossata Plywood Co Coo Bay Lumber Co
Crescent Plyswod Co
BART A BUSSELL ING
BANT A BUSSELL ING
Date Proceed Corp
Date Broken
Date Bro Fir Mig Co
Georgia-Parific Plywood & Lumber Co
MARSON FLYWOOD CO
Hardel Plywood Co
Heidner & Co
Hites (Edward) Lumber Co
Humbolt Plywood Corp Humbel Fyrwood Corp
Industrial Fyrwood Corp
Industrial Fyrwood Corp
Kennsbee Inc Traus Buer Die
Kochton Fyrwood & Venere Co
Lake Picasant Fyrwood Co
Lake Picasant Fyrwood Co
Lake Picasant Fyrwood Co
Martin Bress Box Co
Martin Bress Box Co
Martin Session Box Co
Martin George Bede Pyrwood Corp
Martin Lumber Co
Miller (Geo K) Lumber Co
Miller (Geo wood Corp m a m woodworking to
m a m woodworking to
M Baker Plywood Ine
M Baker Plywood Ine
Mutthersh Plywood Sele
Mutthersh Plywood Ine
Mutthersh Plywood Ine
Mutthersh Plywood Ine
Mutthersh Plywood Ine
Mickey Brothers Ine
Nickey Brothers Ine
Mickey Brothers Ine
Mickey Brothers Ine
Nickey Brothers Ine
Mickey Brothers Ine
Mickey Brothersh
Mickey Br

Western Veneer Co WEYERNAEUSER SALES CO Wheeler Command Co Wheeler-Ongood Co Willamette Valley Lumber Co Woodlawn Plywood Co Woodward Lumber Co

#### PLYWOOD, EMBOSSED

Actna Plywood & Vencer Co ATLAS PLYWOOD COMP U S PLYWSOD CORP

#### PLYWOOD, EXTERIOR

Aberdeen Plywood Corp Actna Plywood & Vencer Co Albany Plywood & American Plywood Corp Anacortes Vencer Inc

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ASSECIATED PLYWOOD MILLS
ATLAS PLYWOOD CORP
Bellingham Plywood Corp
Boffelen Lumber & Mg Co
Cascades Plywood Corp
Cook County Lumber Co
Coos Bay Lumber Co Cook County Lomber Co.
Cook Bay Lomber Co.
BART & RUSSELL INC
Davia Phywood Corp.
Elliott Bay Mill Co.
Engineers Phywood Products Co.
Engene Phywood Co.
Evans Products Co.
Evans Products Co.
Evans Products Co. Heidner & Co Humboldt Plywood Corp Ipik Flywood Co Kennebee Inc Truss Door Div Kochton Plywood & Veneer C 18NG-BELL LUMBER CO Acetion Propose a Vener Co. LIMBER Co. MINESTER CO. MINESTER CO. Mark Seattle Lamber Co. MIRGEL Co. Lamber Co. Millered Safety. Lamber Co. Millered Safety. Lamber Co. Millered Distribution Co. Millered Distribution Co. Millered Distribution Co. Millered Millered Co. Millered Safety. Millered Co. Millered Router Proposed Co. National Physicol Co. National Distribution Co. Millered Safety. Millered Co. National Distribution Co. National Physics Co. National Physic Penninstila .
Plywood Inc
Plywood-Plastics Corp
Plywood-Plastics Corp
Red Sound Flywood Inc Plymode-Planties Corp.
Paget Soust Plymod Dis
Ranier Plymod Co.
Rabolis Plymod Co.
Ribernagel (George J) a fine Co.
Ribernagel (George J West Coast Plywood Co WEYERHAEUSER SALES CO Wheeler Ougood Co Wisconsin Laminating Co Woodward Lumber Co

#### PLYWOOD, FABRIC COVERED

Daris Plywood Corp
M & M Woodworking Co Reemprest Dir
Northwest Dear Co
St Paul & Tacoma Lumber Co
U S PLYWOOD CORP

### PLYWOOD, FLAMEPROOF

#### PLYWOOD, FLEXIBLE HARD-MOOD

Actna Plywood & Veneer Co Superflex Plywood Corp

#### PLYWOOD, HARDBOARD SURFACED

Aberdeen Plywood Corp Industrial Plywood Corp Multoomah Plywood Corp Plywood Inc 8t Paul & Tacoma Lumber Co 5187558 LDGGING CO

#### PLYWOOD, HARDWOOD

PLYWOOD, HARDWOOL
Actas Pirmod & Veneer Co
Albany Flymod Cop
American Flymod Cop
American Flymod Cop
American Flymod Cop
American Cop
American Flymod Cop
American Cop
Braund (W R.) Co
Braund (W R.)
Braun Acceptance Paywood & Veneer Co
#E&&EE CE
MI was Plywood & Veneer Co
#E&&EE CE
M & M Wood Working Co
Mossman & Shafer Inc
National Plywoods Inc
Nickey Brothers Inc
Nickey Brothers Inc
Northern Rational Veneers Inc
Northern Rational
Northern Ration

Gregon Plywood Corp Parion (Frank) Lumber Co Pearl City Phywood Co Inc Pluswood Industries Phywood Inc Physical Juc
Physical Plantics Corp
##5015 PLYWEAD CERP
##5015 PLYWEAD CERP
##5015 PLYWEAD CERP
##5015 PLYWEAD CERP
##5015 PLYWEAD CORP
##5015 PLY TWIN CRY BERTWOOD LAMBER CO Underwood Veneer Co U S MENGEL PLYWOODS INC U S PLYWOOD COMP Weber Veneer & Plywood Co Wheeler Osgood Co Wheeler Osgood Co
Wisconsin Laminating Co
Wisconsin Timber & Land Co
Youngstown Plywood Co

#### PLYWOOD, INLAID Actna Plywood & Veneer Co

#### PLYWOOD, MARINE

American Plywood Corp ASSOCIATED PLYWOOD MILLS INC Davis Plywood Corp DAVIS Plywood Corp HARBOR PLYWOOD CORP HASKELITE MFG CO HIGGINS INC Ipik Pirwood Co MENGEL CO INC M & M Wood INC National Plywoods Inc National Plywood Inc Niagara Plywood Co Northwest Door Co Iregon Ply Plywood Inc
RODDIS PLYWOOD CORP
US MENGEL PLYWOODS INC
US PLYWOOD CORP
Willamette Valley Lumber Co

#### PLYWOOD, METAL COVERED MASKELITE MFG CORP

#### PLYWOOD, PINE

HARBOR PLYWOOD CORP Kochton Plywood & Veneer Co M & M Woodworking MENGEL CO INC Mid West Jobbers Inc Milwankee Plywood Co National Plywoods Inc Pacific Mutual Door Co Plywood Inc RODDIS PLYWOOD CORP Shadowood Co Shasta Plywood Co Shasta Plywood Co Shibernagel (George J) & Sons Co Tartar Webster & Johnson Timber Products Co U S MENGEL PLYWOODS INC U S PLYWOOD CORP

#### PLYWOOD, PLASTIC FACED

Artna Plywood & Veneer Co American Plywood Corp Anaeoutres Veneer Inc Buffelen Lumber & Mig Co Daris Plywood Corp Frable & Lockscher Mig Co Frable & Co Georgia Farchi Plywood & Lumber Co Mange Privaged Comp Kimberly-Clark Corp Kenthor Plywood & Veneer Co Inc HIGGINS INC Kimberly-Clark Corp Koelton Plywood & Veneer MENGEL CO INC Milwaukes Plywood Co M & M Woodworking Co National Plywoods Inc Onational Plywoods Inc & Vencer Co Inc. National Piywoods Inc Northwest Door Co Pearl City Plywood Co Inc Plywood Inc RODDIS PLYWOOD COMP SK Paul & Tacoma Lumber Co SIMPYSON LOGGING CO US NEWEEL PLYWOODS INC US PLYWOOD CORP West Coast Plywood Co west Coast Plywood Co WESTINGHOUSE ELECTRIC CORP West Osgood Co Wheeler Osgood Co WOODALL INDUSTRIES INC

#### PLYWOOD, RAT REPELLENT U S PLYWOOD CORP

#### PLYWOOD, REDWOOD

Actna Plywood & Veneer Co ATLAS PLYW000 CORP Buffelen Lumber & Mfg Co Eureka Plywood Co M & M Woodworking Co

#### PLYWOOD SEALERS

American Vernish Co ATLAS PLYWOOD CORP Daris Plywood Corp MENGEL CO INC Milwaukez Plywood Co Monsanto Chemical Co Oregon Plywood Corp Plywood Inc Standard Varnish Works U S PLYWOOD CORP

### PLYWOOD, STRIATED

U S PLYWOOD CORP

#### POLISHING MACHINES

POLISHING MACHINES
AMERICAN FLOOR SUBFACING MACHINE
ALLS Floor Surfacing Machiner Corp.
Bignell Machine Co.
Clearle Sanding Machine Co.
Detroit Surfacing Machine Co.
Entrol System In Co.
Florines-Habit Co.
General Floorerat Lee.
Blid Floor Machine Co.
Landers Frary & Clark
Linvols-Schluter Floor Machinery Co.
Landers Frary & Clark
Linvols-Schluter Floor Machinery Co. Lincoln-Schluster Floor Machinery Co-PONTER-CARLE MACHINE CO-RED DEVIL TOOLS SKILSAW INC Tennant (G H) Co

#### PORCELAIN ENAMEL

#### PORCH ENCLOSURE PANELS

Compo-Miracle Products Co

#### PORCHES AND CORNICES, MATERIALS FOR

CARR ADAMS & COLLIER CO CURTIS COS INC Schwerd (A.F.) Mfg Co Wheeler Osgood Co

#### POST CAPS & BASES

Chveland Steel Specialty Co Cule Mfg Co Consolidated Iron-Steel Mfg Co Schwerd (A F) Mfg Co Sharon Steel Co BRAINARD STEEL CO

#### POST OR POLE PULLERS

KEYSTONE STEEL & WIRE CO

#### POSTS, ADJUSTABLE FLOOR **LEVELING AND SUPPORTING**

BRAINARD STEEL CO Brothers
Donley Brothers
Holm's Mfg Co of Ohio
Kaptur (Loseph J) Sales Co
Perus. Jack Corp
Sharon Steel Co
Spurgeon (V B) Co
Sparkeon (V B

### POSTS, FENCE, STEEL AND

AMERICAN STEEL & WIRE CO Anchor Post Fence Div Anchor Post Products Inc Bethlehem Steel Co Calumet St Colorado Fuel & Iron Corp COLUMBIA STEEL CO Continental Steel Corp Cyclone Fence Die American Steel & Wire Co Dare Products Ine
KEYSTONE STEEL & WIRE CO
Mid-States Steel & Wire Co
Northwestern Steel & Wire Co
Petite (W T) & Sons

Northwestern Succe.
PITTSBURGH STEEL PRODUCTS CO
PITTSBURGH STEEL CORP
FENNESSEE COAL 180N & RAILROAD CO
Wickwire Spencer Steel Dis Colorado Fuel &

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### POSTS, LANTERN

Daum (Howard A) Schwerd (A F) Mfg Co Swain & Bridge

#### POSTS, MAIL BOX, RURAL

Locke Mfg Co Merryweather Products Co Synchro-Master

#### POSTS AND POLES, CREO-SOTED, SALT TREATED

American Lumber & Treating ( CROSSETT LUMBER CO

#### POSTS AND POLES, WOOD

Arnold-Dain Corp UNUCE (E L) CD Coffax Lumber & Cressing Co CONNOR LUMBER & LAND CO CROSSETT LUMBER CD Fordyre-Crossett Lumber Co Frost Lumber Industries Inc Georgia-Pacific Plywood & Lumber Co LOBG-SELL LUMBER OF
MAGFURIAN CLD ICO LIG
MAGFURIAN CLD ICO LIG
MAGFURIAN CLD ICO LIG
MAGFURIAN CLD ICO LIG
MAGFURIAN CLD ICO
MAGFURIAN CLD
MA Southwestern Cresoting Co WEYERNAEUSER SALES CO Willamette Valley Lumber Co Wood Products Co

#### POTS, GLUE

Black Brothers Co Inc BLACK & DECKER MFG CO Francis (Charles E) ( Sta-Warm Electric Co Vulcan Electric Co Waage Electric Inc

#### POWER PLANTS

C & H Electric Co Filer & Stowell Co HOMELITE CORP Harvester Co. International KONLER CO KONLES CO Leitelt Iron Works Onan (D W) & Sons Inc Ready-Power Co Sterling Foundry Co Inc Wantenha Motor Co WORTHINGTON PUMP & MACHINERY CORP

Butler Mfg Co Clayton & Lambert Mfg Co Close-To-Nature Co

### PREFABRICATED BUILDINGS,

Close-To-Nature Co-Frantory Suilt Homes Inc Ford (1900 R) INC GRH-WAY HOMES INC GREAT LAKES STEEL CORP Green Lumber Co grove Co geon (E F) & Son sten Blow Pipe & Sheet Metal Works sten Ready-Cut House Co es Mfg Co Pioner Co
Potter Mfg & Lumber Co
Potter Mfg & Lumber Co
Precision-Built Homes Corp
Pre Fab Industries
REYMOLDS METALS CO BUILDING PRODS RILCO LAMINATED PRODUCTS INC. STEELCRAFT MFG CO Texas Housing Co Inc Texas Housing Co Inc TIMBER STRUCTURES INC TRUSCOM STEEL CO Unit Structures Inc WEYERHAEUSER SALES CO

#### **▶ PREFABRICATED CLOSETS**

MENGEL CO Roach & Musser Mfg Co

#### **▶ PREFABRICATED GARAGES**

Adirendack Log Cabin Co Inc Bennett Industries Inc Brooks-Skinner Co

# Crawford Corp Davis-Watson Mfg Co Dexter Lumber Co Factory Built Homes Inc Fast (IVAN B) INC GRH-WAY WONES INC Green Lumber Co Hodgson (E. F) & Sons Hyde Park Lumber Co Johnson, Ca Nyde Fark Limber Co Johnson Co Pre-Fab Industries Reliance Steel Products Co ST PAUL CORRUGATING CO Sectional Garage Works Smith-Orr Inc Southern Mill & Mfg Co STEELCRAFT MFG CO Structures Inc. Templeton (Herbert A) Lumber Co Texas Housing Co Inc. Thaper Portable House Co. U S Challenge Co. U S Prefab Corp.

#### **▶ PREFABRICATED HOUSES**

Aladdin Co
Allied Housing Associates Inc
American Bildrok Co
American Houses Inc
Anchorage Homes Inc
Bates Prefabricated Structures Bennett Lumber Corp BEST HOMES INC News Div Blaw-Knex Co BEST NOWES INC
Blaw-Knox Di Blaw-Knox Co
Bralet Homes Inc
Bridges (W P)
Brown & Johnson Corp
Bush Prefabricated Structures Inc
Calif Prefab Corp
Capital Prefab Inc
CLUITER CHARPHATIER CELOTEX CORPARAL
City Lumber to Inc
Crawford Corporation
Currier Lumber Co
Dade Brothers Inc
Drycemble Houses Inc
Durabilt Homes Co
Economy Housing Co
Ess Wood Corp
Factors Rull Homes Fox Brothers Mfg Co GBH-WAY HOMES INC GUNNISON HOMES INC HARNISCHFEGER CORP HOUSES DIV Hayward Lumber & In Hodgson (E F) & Sen HOMASOTE COMPANY Housemar.
Housemar.
Housemar.
Housemar.
Housen Ready-Cut House Co
Illinois Lumber Mig Co
Illinois Lumber Mig Co
Illinois Lumber Mig Co
Internountain House
Internountain House
Johnson Company
Johnson Quality Homes Ine
Klinger Dri-Bill Mig Co
K & M Corp
Knox Corporation Knox Corporation Latisteel Inc Le Tourneau (R G) Inc LUMBER ENGINEERING CO Lunder Fabricators Inc Maryland Modern Housing Corp Midwest Houses Midwest Housing Corp Minter Homes Corp Minter Homes Corp NATIONAL HOMES CORP NATIONAL HOMES CORP New Century Homes Nichols & Cox Lumber Co Page & Hill Homes rage & Hill Homes Panhandle American Houses PEASE WOODWORK CO INC Peerlean Housing Co Plainfield Lumber & Supply Co Plywood Structures Precision Built Homes Corp Precision Homes Co ricco Corporation
Pre-Fab Industries
Prefab Mig Co
Prefabricated Products Co
Prefabricators Inc
Quality Homes
MEYMA: REYNOLDS METALS CO BUILDING PROD-UCTS DIV BATES DW RICHMAN CO BUILDING MELLONG MINISTER SHE MINISTER PRODUCTS INC BROCK Filted Lumber Co.

BROCK LAMBER CO. CATP

SROTE MINISTER PRODUCTS INC BROCK FILTED CO. CATP

SROTE LAMBER CO. CATP

SROTE MINISTER CO. SHE MINISTER MINISTER CO. STELLURAFT ME CO.

STRAN-STEEL DIV GREAT LAKES STEEL

Texas Prefabricated Housing Co THYER MFG CORP POLLMAN NOMES DIV TIMBER STRUCTURES INC TRUSCON STEEL CO

U S Challenge Co U S Prefabricating Corp WNITED STEEL FARRICATORS INC. Universal Fabricating & Mfg Co Well Built Mfg Co WEYERHAEUSER SALES CO Williams (Cy) Fabricators Winston (N K) Associates

### PREFABRICATED LOG CABIN

Fence Co of America Rustic Furniture Co Inc

#### PREFABRICATED WALL PANELS

American Bildrok Co Elliott Bay Mill Co FEMESTRA BUILDING PRODUCTS OWENS-ILLINOIS GLASS CO

#### **▶ PRESERVATIVES. CANVAS**

American Tent & Awning Co Astrup Co Ceraseal Chemical Corp CUPRINGL DIV DARWORTH INC Bewse & Baynolds Inc Bow Chemical Co Itu Pont (E I) de Nemours Co Inc Ensign Products Co Fulton Bag & Cotton Mills Glidden Co Grasselli Chemical Dept Du Pont (E I) de Glidden Co
Grasselli Chemical Dept Du Pont (E I)
Nemours Co Inc
Materials & Treatment Co
Materials & Treatment Co
Materials & Treatment Co
Materials & Treatment Co
Monsanto Chemical Co
Nemours Chemical Inc
Nemours Chemical Inc
Nemours Chemical Inc
Nemours Chemical Inc
Pennsylvania Salt Mit Co
PriTSBURGH PLATE GLASS CO
PriTSBURGH PLATE GLASS CO
PriTSBURGH PRADUCTS WEG CO
Puritan Sales Co
Standard Industrial Products Inc
Sullivan Company
Vista-Var Comp
Weather-Seal Co
William Co
Wood-Treating Chemicals Co
Wood-Treating Chemicals Co

#### PRESERVATIVES, FIBER BOARD

CELOTEX CORPORATION Chapman Chemical Co. Monsanto Chemical Co PRETECTION PRODUCTS MFC CO Wood Treating Chemical Co

#### PRESERVATIVES, MASONRY

Truscon Laboratories Div Devoe & Raynolds

▶ PRESERVATIVES, WOOD Abeste Mfg Corp American Lumber & Treating Co Barr (W M) & Co BARRETT DIV ALLIED CHEMICAL & DYE BARRETT BUY ALLIED CHEMICAL
CORP
Royer Chemical Laboratory Co
BRUCE (£ L.) CB
CABOT (SAMUEL) INC
CA-WOOD Preserver Co
Caraonal Chemical Corp
Creaseal Chemical Corp
Chemical Research Products Co Inc
Coopers Creek Chemical Corp
Cre-0-Tox Chemical Corp
Cre-0-Tox Chemical Corp
Cre-0-Fox Chemical Corp
Cre-0-Tox Chemical Corp
Cre-0-Tox Chemical Corp Cre-O-Tox Chemical Co CUPRINGL DIV DARWORTH INC Devoe & Raynolds Inc CIPÉRIMA DE LE DARRESSE LE CONTROL DE CONTRO Mortell (J W) to Nelsonite Chemical Products Ine Olympic Statued Products Co Palor Products Ine Painter Polaries Inc Pasiter (Ira) & Grasse MIG Co Parter (Ira) & Sons PERMA PRODUCTS CO PITTSRUNGEN PLATE GLASS CO PITTSRUNGEN PLATE GLASS CO

Furnity Products Inc Reilly Tar & Chemical Corp Republic Cressoting Co Rock Kelend Milleret Co argent-Gerke Co onneborn (L) Sons Inc pees Inc Landard Industrial Products Inc tectrote Mfg Co utilivan Co ermitol Co sco Chemicals Inc

#### emical Co PREVENTIVES, SAP STAIN

Breinig Brothers Inc Chapman Chemical Co Cre-O-Tox Chemical Co Dow Chemical Co
Du Pont. (E I) de Nemours Co Inc.
Forman-Ford & Co Neisonite Chemical Products Inc PROTECTION PRODUCTS MFG CO Wood Treating Chemicals Wyandotte Chemical Corp

#### PUBLICATIONS, CONSUMER, SHELTER

American Home Magazine Corp BETTER HOMES & GARDENS Farm Journal GOOD NOUSEKEEPING FORUM HOUSE BEAUTIFUL House & Garden

#### PULLERS STUMP, TRACTOR AND HORSE DRAWN

Dorsey Trailers Hyster Co

#### PULLEYS, AWNING

CORBIN (P & F) DIV AMERICAN HARD-Beading Hardware Corp SARGENT & CO

PUMP, LEATHERS

Adams (C F) Inc
Chicago Belting Co
Myers (F E) & Brethers Co
Red Jacket Mfg Co

### PUMPS, BOOSTER

RELL & GOSSETT CO Taco Heaters Inc THRUSH (H A) CO

#### PUMPS, CENTRIFUGAL ALLIS-CHALMERS WFG CO

Aurora Pump Co DECATUR PUMP CO Demins Co.

Economy Pumps Inc Div Hamilton Thomas
Exter Pump & Engine Works
Enric Pump & Engine Works
Enrick Mig Co.
FIRST & WALLING MFG CO INC
HUNGLITE COR
MATTOR FUMPS
McDunald (A V) Mfg Co. Inc
McTor Fumps
McDunald (A V) Mfg Co.
Bod Jacket Mfg Co.
Bod Jacket Mfg Co.
Bod Jacket Mfg Co.
Wayne, Home Equinoment Co.

#### Wayne Home Equipment Co WORTHINGTON PUMP & MACHINERY CORP

#### PUMPS, CONTRACTORS'

CHAEMICO
CONSTRUCTION MACHINERY SALES COS
DELCO APPLIANCE DIV GENERAL MOTORS
CORP COMP HOMELITE CORP JAEGER MACHINE CO yers (F E) & Brother Co

#### PUMPS, HEAT

General Engineering & Mfg Co Muncie Gear Works Both (Boy E) Co

#### PUMPS, JET

Oilux Co Penberthy Injector Co

### PUMPS, STIRRUP

knorican Line Baker Mfg Co ming Co moster Mill Mfg Co Dempster Mill Mfg Co
Dobbins Mfg Co
FLINT & WALLING MFG CO INC
Hadson (HD ) Mfg Co
Independent Leek Co
Independent Leek Co
Independent Leek Co
Oakes Mfg Co
Smith (D B)
Trunswee Store Works Store Works

#### PUMPS, SUCTION

Chicago Pump Co Dayton Pump & Mfg Co Deming Co Erie Pump & Engine Works Everite Pump & Mfg Co Inc FLINT & WALLING MFG CO INC Gardner Denver Co. incaster Pump & Mfg ellonald (A Y) Mfg Co Wayne Hame Equipment Co WORTHINGTON PUMP & MACHINERY CORP

#### PUMPS, SUMP

rican Well Works Aurora Pump Co Chicago Pump Co
CONSTRUCTION MACHINERY SALES CO
Darton Pump & Mfg Co agron rosses cening Co cenipster Mill Mfg Co cenipster Mill Mfg Co Economy Pumps Inc Div Har Corp Everite Pump & Mfg Co Inc Fairbanks Morse & Co FLINT & WALLING MFG CO Gould vumps and
Jacuzzi Strothers inc
Jacuzzi Gould inc
Mig Co
Michonald (A T) Mig Co
Michonald Picqua Machine & Mfg

Warne Home Equipment Co Inc. WORTHINGTON PUMP & MACHINERY CORP.

#### PUMPS, WINDMILL

Battler Co
Deminis Co
Deminis Co
Deminis Co
Fairhanks Morre & Co
Fairhanks Morre & Co
Fairhanks Malling
McCo
McBonald (A T) Mfg Co
Myers (F E) & Brother Co
Red Jacket Mfg Co

#### PUNCHES, CENTER

American Swiss File & Tool Co.
Baltimore Tool Works
Bridgeport Hardware Mfg Corp.
Cincinnati Tool Co.
Crescent Tool Co.
Damassus Steel Producta Corp.
Drew (C) & Co. Inc.
Fairmount Tool & Forging Co.
Heller Brothers Co.
Kroutfer & Co. Inc. netter Brothers Co
kraeuter & Co Inc
Maybew Steel Products Inc
Mephisto Tool Co
Millers Falls Co
Original Enderse Co
F & C Hand Forged Tool Co
Lainer-Tools
Lainer-Tools iainey-Tools TANLEY WORKS rimble & Fink Mfg Co. Trimble & Fine Union Tool Co United Wire Goods Mfg Co Wilde Drop Forge & Tool Co

#### PURLINE, STEEL

lamming Inc.

#### PUTTY, LEAD

Biddle Co Cook Paint & Varnish Co Eagle-Picher Co Eagle-Picher Co Gumputtic Laboratories Kuhls (H B Fred) Pecora Paint Co PITTSBURGH PLATE GLASS CO Sultivan Co Tamms Industries Inc

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### PUTTY, METAL SASH

Armstrong Co
Biddle Co
Biddle Co
Bidge Tale Co Inc
Briggs Maroney Co Inc
Briggs Maroney Co Inc
Briggs Maroney
Evone Raynolds Inc
Dicks Pontius Co
houley Brothers
Felton Sibley & Co
Fort Pitt Chemical Co
Gumputtie Laboratories
Works Gumputtie Laboratories
Landen Putty Works
MACKLANGURG-OUNCAN CO
MAS-KAN Mfg Co
Parker i Iral & Sons Inc
Pecota Paint Co
Plastie Products Co
Stocoth-On Mfg Co
Steelcote Mfg Co

#### PUTTY, OIL

Armstrong Co Biddle Co lle Co
Ridge Talc Co Inc
e-Midway Inc
gs-Maroney Co
isty Co Inc
oe & Raynolds Inc Christy Co Inc
Devoe & Raynolds Inc
Dicks-Pontius Co
Durham (Denald) Co
Ever-Plastics Corp
Farwell Ozman Kirk & Co Felton Sibley & C Fuller (W P) = Glidden Co Goodrich (B F) Co stie Laborate Horn (AC) Co JOHNS-MANVILLE CORP Kuhls (H B Fred) Lichten Co Inc
MACKLANBURG-DUNCAN CO
Mar-Kay Mfg Co
Minnesota Liussed Oil Paint Co
Parker (Ira) & Sons Inc PITTSBURGH PLATE GLASS CO Plastie Products Co
Rasaugran Co
Schalk Chemical Co
Schalk Chemical Co
Schalk Chemical Co
Steelerick Mig Co
Steelerick Mig Co
Steelerick Mig Co
Tamus Rodustries Inc
Tremen Mig Co
Truscon Laboratories Div Devoc & Raynolda
Wohl Products Co
Wetherill (George D) & Co

### PUTTY, PLASTICIZED, WOOD

Boyle-Midway Inc Breinig Brothers Inc Lacton Glue Mfg Co Mobile Paint Mfg Co National Casein Sales Schalk Chemical Co Steelcote Mfg Co Technical Supply Co Willman Products Co

#### PUTTY REMOVERS, ELECTRIC Fletcher Terry Co.

PUTTY, ROOF

Abesto Mfg Corp Biddle Co Blue Ridge Tale Co In IOHNS-MANVILLE CORP King (E & F) & Co Inc Seal Rite Caulking Co Inc Smooth-On Mfg Co Stonbard Co

#### PUTTY, WATER

Boyle-Midway Inc Durham (Donald) Co Fort Pitt Chemical Co Fuller (H B) Co Lichten Co Inc Bearden Co Savograti Co Schalk Chemical Co Sheffield Bronze Paint Corp Steelente Mfg Co Sullivan Co Tanzas Industries Inc

### RACEWAYS, WIRE CARRY-

AMERICAN TELEPHONE & TELEGRAPH CO REPUBLIC STEEL CORP

#### RACKS, BARREL DRAINING Nutting Truck & Caster Co

#### RACKS, FIRE HOSE

Allen (W D) Mfg Co Beall Pipe & Tank Corp Elishart Bram Mfg Co Wirt & Knox Mfg Co

Pratt & Lambert
PROTECTION PRODUCTS MFG CO

RACKS, PIPE

Finch & McCullouch Mutti-Products Inc Precision Equipment Co Bed Tiger Products Inc

RACKS, REVOLVING, FOR DOORS, PANELS, ETC

Ken-Bo-Bil Corp

#### RACKS, SCREEN WIRE

Arrey Corp Easy Serve Screen Dispenser Heller (W C) & Co Marvel Rack Mfg Co Pocono Metal Products Co Warn Brothern

RACKS, SHOE

American Metal Specialties Corp Carlson (A B) & Co Imperial Metal Mrg Co Kennedy Co Kennedy Co Knape & Vogt Mfg Co Perfem Novelty Co

RACKS, STORAGE, STORM WINDOWS AND SCREENS.

RACKS, STORE DISPLAY

American Woodworking Co
America Woodworking Co
America Equipment Co
Best (John B) & Sons
Best (John B) & Sons
Best (John B) & Sons
Heller (W C) & To
Larison (Charles O) Co
Larison (Charles O) Co
Larison (Charles O) Co
Larison (Charles O) Co
Multiples Concrete Machinery Co
National Guard Products
Precision Equipment Co
Red Tiger Products Inc
Reference Co
Reference Hardware Corp
Reneo farren (J D) Mfg Co

RACKS, WINDOW GLASS

Heller (W.C.) & Co Marvel Rack Mfg Co Inc Universal Equipment Co

**RADIATORS** 

AMERICAN RADIATOR & STANDARD SANI-TARY CORP BURNHAM CO BOILER DIV MATIONAL RADIATOR CORP

▶ RADIATORS, CONVECTOR

Fedders Quigan Co Rome-Turney Radiator Co

**RADIATORS, PORTABLE** 

eme Electric Heating Co lectric Steam Radiator Corp lorton (Henry J) Associates Inc entry Metal Products Div Sentry Control Corp

RADIOS, FLUSH WALL

Bendix Radio Div Bendix Aviation Corp FLUSH WALL RADIO CO

RAFTERS, LAMINATED

AMERICAN ROOF TRUSS CO INLAND STEEL PRODUCTS CO Knapp Brothers Mfg Co RILCO LAMINATED PRODUCTS INC TIMBER STRUCTURES INC WEYERNAEUSER SALES CO Wollaeger Steel

RAILINGS, METAL

Armeo Drainage & Metal Products Inc ARTCRAFT ORNAMENTAL IRON CO Belson Mfg Co BLUM (JULIUS) CB INC Davis & Siehl Co Becatur Iron & Steel Co Des Moines Ornamental Iron Co

FAWSCO MFG DIV FALLS STAMPING & WELDING CO

GENERAL BRONZE CORP Grand Rapids Wire Products Hawkins Iron Co Inc Hutchinson Co International Steel Co Kentucky Metal Products Co Locke Mfg Co

Logan Co METAL CRAFTERS

METAL CRAFTERS
Meyers (Frod L) Mig Co
Neuman Brothers Inc
Neuman Brothers Inc
Cable Co Inc
Cable Co
Souther Wire & Iron Works
Southern Wire & Iron Works
Southern Wire & Iron
Southern Wire
Southern Wire
Southern Co
Wienath (Errost) Iron
Works

RAILINGS, WOOD

ANGEL NOVELTY CO Cole Mfg Co CROSSETT LUMBER CO CURTIS COS INC UNTIS COS INC rley & Loetscher Mfg Ca srdyce-Cressett Lumber Co roost Lumber Industries Inc cystone Frame & Mfg Co lumber Line Mills Co Kinzna Pine Mills Co LONG-BELL LUMBER CO Marquart Millwork Co Marquart Millwork Co Morgan Co Rock Island Millwork Co Willamette Valley Lumber

RANGES, ELECTRIC, BUILT IN rmador Electrical Mfg Co

RANGES, ELECTRIC

Admiral Corp America & Southern Corp Benjamin Electric Co Cavalier Corp

stroit Michigan Store Co stroit Vapor Store Dir Borg-Warner Corp state Store Co Dir Noma Electric Co svelsior Store & Mfg Co defence Store Co

Figitaire Div General Motors Corp GENERAL ELECTRIC CO APPLIANCES & MERCHANDISE DEPT Kalamazoo Stove & Furnace Co KELVINATOR DIV NASH-KELVINATOR CO

RELYMATOR DIV MASH-RELYMATOR CR Kennedy Co. Landers Frary & Clark Lindemann (A J) & Hoverson Ca Malrable from Bange Co Montor Equipment Corp Montag Nove & Furnace Works Murray Corp of America Marray Corp of America March

Store Co Phileo Corp Prentiss Wabers Products Co Pressed Steel Co Roberts & Mander Corp Rutenber Electric Co I Thermador Electrical Mfg Co WESTINGHOUSE ELECTRIC CORP

RANGES, GAS

A B Store Co
America & Southern Corp
American Store Company
Anderson Store Co Inc
Birmingham Store & Bange Co
Caloric Gas Store Works CHAMBERS CORP

Cribben & Sexton Co CROSLEY DIV AVCO MFG CORP Crown Store Works Detroit Crown Store Works

Crown Store Works

Detroit Michigan Store Co
Detroit Vapor Store Div Borg Warner Corp
Eligin Store & Oven Co Div Acme Visible
Records Inc
Funder Store Co

Records Inc
Empire Stove Co
Estate Stove Co Div Noma Electric Co
Eureka Products Corp
Excelsior Stove & Mfg Co
Florence Stove Co Gem City Store Mfg Co GENERAL AIR CONDITIONING CORP Glenwood Runge Co

Glenwood Range Co
Globe American Corp
Grand Home Appliance Co
Hardwick Store Co
Graham (James) Mfg Co
Karr Range Co
Lindemann (A J) & Hoverson Co Lindemann (A J) & Hoverbon Co Majestic Mig Co Malleable Iron Range Co Mounter Equipment Co Mit Vernon Furnace & Mig Co Mutray Corp of America NORGE DIV BORG-WARNER CORP (APPLI-ARCE DIV

Manufacturers' Names and Addresses Start on Page D-76

Manufacturers' Brand Name Identifications Start on Page D-64

Gdin Store Mfg Co O'Keefe & Merritt Co Paragon Utilities Corp Parfection Store Co Paragon Utilities Corp Perfection Stowe Co Prentian Wabers Products Co Benows Blace Corp Benows Blace Corp Boper (George D) Corp Sexton (6 B) Bore & Mig Co Tappan Stowe Co Utility Appliance Corp Washington Store Works Welbilt Store Company Inc Western-Holly Appliance Co Wascarn States Corp

> RANGES, GAS & ELECTRICAL REFRIGERATOR COMBINA-

Acme-National Refrigeration Co SEMERAL AIR CONDITIONING CORP

RANGES, WOOD & COAL

Excelsior Store & Mfg Co Gray & Dudley Co King Store & Range Co Majestic Mfg Co Malleable Iron Range Co Washington Store Works

RATCHETS, FENCE

Cyclone Fence Div American Steel & Wire Co Sterling Foundry Co Wrightsville Hardware Co

RECEIVERS, GARBAGE

Arrey Corp. Steel Co Geuder Paeschke & Frey Co KEWANEE MF4 ER Kraus (Walter S) Co LAWSON (F H) CO MAJESTIC CO National Enameling & Stamping Co Northwest Metal Products Inc Witt Cornice Co

RECEIVERS, PACKAGE

AIR CONTROL PRODUCTS INC. Allen Steel Products
BOSTWICK STEEL LATH CO
COPCO STEEL & ENGINEERING CO
CORBIN CABINET LOCK DIV AMERICAN
MAREWARE CORP F Brothers Co Metal Cabinet Co Inc al Steel Co Harris Inc INLAND STEEL PRODUCTS CO MAJESTIC CO

> RECEPTACLES, GARBAGE, ASH

American Can Co
Boyle Mg Co
Cincinnati Galvanizing Co
Cingles Co
C

Master Metal Products Co Name Northwest Metal Specialty Co Procision Equipment Co Puritan Chemical Co Recres Steel & Mrg Co Sanitary Receiver Co Ins Sexton Can Co Wheeling Corrugating Co Witt Cornice Co

REELS, GARDEN HOSE

Craco Sales Corp Lewis Engineering & Mfg Co True Temper Corp Zierden Mfg Co

▶ REFRIGERATORS, ELECTRIC

CROSLEY DIV AVCO MFG CORP Deepfreeze Div Motor Products Co Despresse Div Motor Products Corp Dexter Co Estate Stove Co Div Noma Electric Co Estate Store to DIV Norma Electric to Friedrich (Ed) Inc Frigidaire Div General Motors Corp GENERAL AIR CONDITIONING CORP GENERAL ELECTRIC CO APPLIANCES & MERCHANDISE DEPT General Implement Corp General Refrigerator Corp Gibson Electric Refrigerator Corp Giffilian Brothers Inc

Jordan Befrigerator Co KELVINATOR DIV NASH KELVINATOR CO King Refrigerator Corp LEESON STEEL PROOS INC Lindemann (A J) & Hoverson Co McQuay Inc Monitor Equipment Corp NOREC DIV BORG-WARNER CORP (APPLI-ARCE DIV) O'Kerde & Merritt Co Philos Befrigerator Corp Framed State (Co Befrigeraton Salas Co Scoper Befrigerator Co Ward Refrigerator & Mfg Co WESTINGHOUSE ELECTRIC CORP

REFRIGERATORS, GAS Servel Inc.

REGISTERS, HEATING AND VENTILATING

AIR CONTROL PRODUCTS INC American Foundry & Furnace Co Auer Register Co
BENNETY-INCLAND INC
Excelsion Stone & Mig Co
Forest City Foundries Co
Hart & Cooley Mig Co
NEATILATOR CO
INLAND STEEL PRODUCTS CO INLAND STEEL PRODUCTS CO
KRAINEr-Boyd Inc
Liberty Foundry Co
Liberty Foundry Co
Parker (8) Hardware Mfg Corp
Parker (8) Hardware Mfg Corp
Philodiphia Hardware Mfg Malleable Iree
Randard Ricel Cablinst Co
Tuttle & Balley Inc
U S Register Co

REPELLENTS, BIRD Nixalite Co of America

REPELLENTS, INSECT

All-Nu Products Co Calumet Belining Co Glidden Co Nourse Oil Co Socony-Vacuum Oil Co Inc

REPELLENTS, WATER

American Lumber & Treating Co Armor Laboratories ONCOR PAINT CO Dow Chemical Co
Du Pont (E I) de Nemours & Co Inc
Flexrock Co Horn (A C) Co Inc Monroe Co Inc Monsanto Chemical Co PROTECTION PRODUCTS MFG CO Rock Island Milliwork CO
Standard Dry Wall Co
Standard Dry Wall Co
Spray-0-Bond Co
Truscon Laboratories Div Devoe & Raynolds
Inc
Vita-Var Co
Wood-Treating Characteries Wood-Treating Chemicals Co WURDACK CHEMICAL CO

▶ RESIN, SYNTHETIC

BARRETT DIV ALLIED CHEMICAL & DYE CORP
Borden Co Chemical Ply
Borden Co Chemical Ply
Devos & Raymold Inc
Du Pout (E 1) do Nemours & Co
Frietone Pasilo. Co
Friiter (B 1) Co
Friiter (B 1) Co
MERGE CO
MERGE CO
MERGE CO MEMGEL CO Monistre Chemical Co Plastics Dir National Casein Sales Paisley Products Inc Perkins Gine Co Perkins Glue Co
PITTSBURGH PLATE CLASS CO

Place Div Paisley Products
Reilly Tar & Chemical Corp
Reilly Tar & Chemical Co-Rohm & Hass Co U S PLYWOOD CORP U S Rubber Co **▶ RIVETS** 

CHASE BRASS & COPPER CO HASSALL (JOHN) INC Sterling Bolt Co

**RODDING MACHINES** Whitman Mfg Co

RODS, CURTAIN Bore (James H) Mfg Co Kirsch Company Paramount Wire Co Inc Youngstown Mfg Inc

RODS, LIGHTNING

American Lightning Bod Co Inc Boston Lightning Red Co Brown Lightning Protection Syst Burkett Lightning Rod Co

Desley Lightning Rod Ce Electra Protection Ce Inc Independent Protection Co Ce National Lightning Protection Co Ohio Lightning Bod Ce Robbins Lightning Protection Ce Shranger & Johnson Inc Thompson (George E) Ce West Dodd Lightning Conductor Cer

## ▶ RODS & RINGS, SHOWER CURTAIN

Kepstone Brass & Bubber Co Mueller Co Scovill Mfg Co Speakman Co

#### PROLLERS, LAWN

Boyle Mfg Co Jackson Mfg Co Lansing Co Ohio Machine Products Co Whitehurst (E W) Mfg Corp

## PROLLERS, LINOLEUM ARMSTRONG CORK CO BUILDING MA TERIALS DIV

Lansing Co SELCK (WALTER E) & CO

## ROLLERS, LUMBER, CAR

American Logging Tool Co Buck (Frank R) & Co Leach Co Nolan Co lience Schuchardt (Arnold J)

#### ROLLERS, LUMBER, LIFT, TRUCK

Collina Lorimer Murphy Lumber Co Myster Co Boss Carrier Co Stewart Co

#### ROLLERS, POWERED

Buch Mfg Co Essick Mfg Co Wayer Impactor Inc

#### ROLLERS, TRUCK BED

Fruchauf Trailer Co E-B Company Stimmel Winch Co Wentworth & Irwin Inc

#### ▶ ROLLS, RIDGE, ROOF VENTILATING

Allen Steel Products
INLAND STEEL PRODUCTS CO
Klauer Mfg Co
ST PAUL CONNUGATING CO

#### ROLLS, ROOF RIDGE

Althoma Neel Lath Co
Badger Corrusating Co
Berger Mig Die Republis Reel Corp
Berlileben Reel Co
Berlileben Reel Co
Berlileben Reel Co
Continental Sire Corp
Creas STEEL PRODUCTS COMP
CHASE BRASS & COPPER CO
COLINENTAL SIRE CORP
CHASE BRASS & COPPER CO
COLINENTAL SIRE COPPER CO
COLINENTAL SIRE COPPER CO
COLINENTAL SIRE COPPER CO
INLAND STEEL PRODUCTS CO
INLAND STEEL CORP
INLAND STEEL CORP
CHASE CONTINUES CO
NOTINEED STEEL CORP
REPUBLIC STEEL CORP
RESULD STEEL CORP
RESULD STEEL CORP
STEALS CO SUILDING PRODUCTS DIVING CORPUS CONTINUES CONTINUES CO
SCOTIMENT STEEL CORP
STEALS COUNTY CORPUS CONTINUES CO
SCOTIMENT STEEL CORP
STEALS COUNTY CONTINUES COUNTY
STEALS COUNTY CONTINUES COUNTY
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STEALS COUNTY
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#### ROOF SADDLES

Hudson (H D) Mfg Co tmland STEEL PRODUCTS CO Macomb Steel Products Co Recres Steel & Mfg Co

#### PROOFING, ALUMINUM

Alumatux Co
Alumizam Co of America
CECO STEEL PRODUCTS CORP
Chemical Supply Co
Cupples Co

### KAISER ALUMINUM & CHEMICAL SALES | ROOFING, SEALERS,

18G
Nettional Alaminum Producta Co
New Holland Metals Co
New Holland Metals Co
NEVNALDS METALS CO BUILDING PROD-ECTS OTV
Southern States Iron Buefing Co
Tiffin Art Metal Co

#### ROOFING, ALUMINUM, CORRUGATED

Aluminum Co of America CECO STEEL PRODUCTS COMP Cupples Co New Holland Metals Co BEYMOLDS METALS CO BUILDING PROD-UCTS DIV Southern States Iron Booting Co

#### ROOFING, ASBESTOS CEMENT

CAREY (PHILIP) NFG CO Ehret Magnesia Mig Co FLINTNOTE CO JOHNS-MARVILLE COMP NEASBEY MATTISON CO Logan-Long Co Paboe Products Inc RUBEERAD CO Seaboard Plastics Corp Supradur Corp

## ROOFING, ASBESTOS

ASSESTANE CORP CAREY (PHILIP) MFG CO FLINTKOTE CO JOHNS-MANVILLE CORP KEASBEY & MATTISON CO HUSTERING CO

#### ROOFING, ASPHALT ROLL

American Amphait Boof Corp
BARBETT DIV ALLIED CHEMICAL & DYE
CO # Saw NEC
CO # Saw NEC
CAREY (FRILIP) MFS CO
CELOTEX COSP
CERTAIN TEED PRODUCTS CO
FLINTWOTE CO
FLINTWOTE CO
GOING BOOTING Products CO
GOING BOOTING Products CO
GOING BOOTING Products CO
GOING BOOTING PRODUCTS
HORD PRODUCTS
HORD FOR THE PRODUCT

#### ROOFING, BUILT-UP, MATERIALS FOR

### ROOFING, CONCRETE SLAB

Price Brothers Co

#### ROOFING, COPPER

American Bram Co GEO STEEL PRODUCTS CORP CNASE BRASS & COPPER CO Edwards Mfg Co Humery (C G) & Co INLAND STEEL PRODUCTS CO Restate George & Brass Inc.

#### ROOFING, SEALERS, CORRUGATED

Fabricated Products Co

#### ROOFING, STEEL

Aluminum Co of America
AMERICAM STEEL & WHR CB
Armon Sitel Corp
Berger Mig Div Bepublic Steet Corp
Berger Mig Div Bepublic Steet Corp
Berger Mig Div Bepublic Steet Corp
CECO STEEL PRODUCTS CORP
Chemical Supply Co
Chemy Industries
Childern Mig Co
Chemy Industries
Childern Mig Co
Chemy Industries
Childern Mig Co
Continental Beet Corp
Couples Co
Exercity Mig Co
Exercity Mig Co
Continental Beet Corp
Couples Co
Exercity Mig Co
Exercity Mig Co
Grantic City Steel Co
Grantic City Steel
Granti

Malbot (R.C). Co
Mid-States Beef & Wire Co
New Wolliand Metals Co
New Wolliand Metals Co
REPUBLIC STEEL CORP
REPUBLIC STEEL CORP
REPUBLIC STEEL CORP
REVENCES SET COMPACTING CO
SIGNED STEEL CORP
SIGNED STEEL CORP
SIGNED STEEL CORP
SIGNED STEEL CORP
SIGNED CORP
SIGNED STEEL CORP
SIGN

## ROOFING, STEEL, ASPHALT COATED

AMERICAN STEEL & WIRE CO Cheney Industries Plasteel Products Co

#### ROPE, COTTON

Archer (A W) Co Inc
Astrup Co
Ribb Mfg Co
Fricke (J E) Co
Graham (John R) & Co Inc
Lambeth Regg Corp
Puritan Cordago Mills
Rasher Mfg Co Inc
SAMSSAM (ONDACE)
Turner & Skanton Co
Whitaker (William D)

## ROPE, HEMP, MANILA & SISAL

American Ladder Co
American Mit Co
American
Brow Works Inc
Cating Brow Works
Mit Co
M

#### PROPE, WIRE

American Cable Div American Chain & Cable
Co Inc
AMERICAN STEEL & WIRE CO U S STEEL
CORP SUB
Rethleben Steel Co
Broderick & Bancon Mope Co
Colorado Foul & Iron Corp

Bellichem Steel Cs
Broderick & Bansem Hope Ce
Colorado Fuel & Iron Corp
Columbia STEEL Co
Hasher Mr. Bope Dir American Chain &
Call Columbia Columbia
MacWhyte Ce
Rosbillag's (John A) Bona,
TERMESSEE COAL 1899 & RAILEDAD CO

Manufacturers' Names and Addresses Start on Page D-76
Manufacturers' Brand Name Identifications Start on Page D-64

#### ► ROUTERS, ELECTRIC HOME-CRAFT

Chicago Whork & Mig Co
CUNNINS PORTABLE TOOL DIV CONNINSCHICAGO COSP
Duro Bietal Products Co
Buro Bietal Products Co
Buro Bietal Products Co
Buro Bietal Products Co
Buro Bietal Products Co
WERES LICETRIC TOOL DIV STANLEY
WALKES-TUNNER CO DIV KERREY &
TREEKEE BY
TREEKEE WALKES-TUNNER CO DIV KERREY &

#### RULES, BOARD LUMBER-MEN'S

Buck (Frank B) & Co Lufkin Rule Co STANLEY TOOLS DIV STANLEY WORKS

### RULES, BOXWOOD

Lifkin Rule Co

#### RULES, FOLDING

PROLES, FOLDING
Dictages (Engrane) Co
Eagle Rule MTg Corp
Eagle Rule MTg Corp
Evans Co
Glasiers' Tool MTg Co
Glasiers' Tool MTg Co
Loftin Rule Co
Loftin Rule Co
Loftin Rule Co
STARLEY TOOLS DIV STARLEY WORKS
NATURED CO. 3) CO
STARLEY TOOLS DIV STARLEY WORKS
NATURED CO. 4) Co
STARLEY TOOLS DIV STARLEY WORKS
NATURED CO. 4) Co

#### RULES, SLIDE

Academic Slide Bule Co Dictagen (Eugene) Co KEUFFEL & ESSER CO Lawrence Engineering Service Multi-Aid Computer Corp. Pickett & Eckel Union Tool Co

#### RULES, STEEL

Nown A Sharps Mfg Co CARLSER & SULLIVAN Eagle Rule Mfg Corp. Economy Novelly a Printing Co EVARS & GO SECURE & ESER CO MAURICE & ESER CO MAURICE Rule Mfg Co Inc Millers Falls CO CR. Wall Tool Co Red CUSTUD & SORE CUSTUD TOOL CO Woodmark Industrial Inc

#### > SAFES

Itietuid Inc General Fireproofing Co Herring-Hall Marvin Safe Co McCaskey Begister Co Mouler Safe Co York Safe & Lock Co

#### SAFES, BUILT-IN WALL

Dudley Lock Corp Gabriel Steel Co Meilink Steel Safe Co Mouses Safe Co Member Safe Co

#### > SALAMANDERS

Acroil Froducta Co
American Sizeel Works
BABIELS (C B) 186
Donley Goorge W) Mig Co
Donley Brothers
Jackson Mig Co
Mohawk Asphalt Heater Co
Ohio. Store: Co
Unique Mig Co Inc

### SAND, SILICA WHITE

Crystal Silies Co Tamms Industries Inc.

## SANDERS, BELT, DRUM, SPINDLE & DISC

Desch MEC CO
Desch MEC CO
Desch MEC CO
DESCE CASAE CO
Curis Machine Cop
Curis Machine Cop
Curis Machine Cop
Electron Carles & Co
Curis Machine Cop
INDEPENDENT PAREMATIC TOOL CO
MILWAUKE ELECTRIC TOOL COM
Norman Brethers Inc
Curis Machine & Tool Co
Norman Brethers Inc
Curis Casae Cop
Cu

BOCKWELL MFG CO DELTA POWER TOOL DIV SYAMLEY WORKS TOSL DIV STANLEY WORKS TOSL DIV KEARPEY & THECKE COPP DIV KEARPEY & THECKE COPP & COPPER COPP COPPER CO

### SANDERS, ELECTRIC, PORT-

AMERICAN FLOOR SURFACING WACHINE ATLAS PRESS CO BLACK & DECKER MFG CO BRADFORD MACHINE TOOL CO Detroit Surfacing Machine DREMEL MFG CO General Floor Craft Inc. INDEPENDENT PREUMATIC TOOL CO Jittebrus cancer
Kent Co Inc
MALL TOSL CO
MALT TOSL CO
MITTER Fails Co
MILWAUKE ELECTRIC TOSL CORP
PITTSBURGH FLATE GLASS CO
PORTER-CASLE MACHINE CO
Portable Electric Tools Inc

RED DEVIL TOOLS ROCKWELL MFG CO DELTA POWER TOOL SKILSAW INC Speedway Mfg Co STANLEY TOOLS DIV STANLEY WORKS

#### SANDERS, FLOOR

Albertson & Co Inc AMERICAN FLOOR SURFACING MACHINE Atlas Floor Surfacing Machinery Corp. Clarke Sanding Machine Co. Clarke Sanding Machine Co Detroit Surfacing Machine Co DREMEL MFG CO Florboss-Hahit Co General Floor Craft Inc Hilger Co Hilger Co Holt Mfg Co Family-Schlueter Floor Machinery Co Inc MALL TOOL CO RED DEVIL TOOLS Reid Way Corp. ROCKWELL MEG CO DELTA POWER TOOL SKILSAW INC WALKER-TURNER CO DIV KEARNEY & TRECKER CORP

#### SASH BALANCES

Sash Balance Co Window Stay Co ALL METAL Aluminum Window Corp Arrow Mfg Co Inc CALDWELL MFG CO Bredance Metal Weatherstrh Dorbin Metal Strip Mfg Co Buplex Inc Fabry (W H) Mfg Co GENERAL BRONZE CORP Grand Rapids Hardware Co Ideal Brass Works Inc Industrial Iron, Works erstrip Co MASTER METAL STRIP SERVICE CS MASTER Malamping Co Milwaukee Stamping Co NATIONAL LOCK CO Weatherstrip Mfg Co Pullman Mfg Co Robbins Mfg Co Rock Island Millwork Co Schumacher (F E) Co Star Sash Balance Cotp FURNER & SEYMOUR MFG CO UNIQUE BALANCE CO INC Warnica Products
WEATHERPROOF PRODUCTS CORP
Western Foundry Co
ZEGERS INC

#### SASH CORD, FIBER

Archer (A W) Co Inc I annite Cordage Co Cieveland Mill & Power Co Cupples Co Complex Co.

Graham (John H) & Co. Inc.

Highland Cordage Co.

Hoffman Lion Mills Co. Inc.

Hoffman Lion Mills Co. Inc.

Hoffman Lion Mills Co. Inc.

Reoper (William E) & Sons Co.

Purtan Cordage Mills

Reoper Mills Millwork

Co.

Rock I Island Millwork Co.

Rocky Mount Cord Co.

SAMSOM CORDAGE WKS.

Silver Lake Co. Silver Lake Co Southern Mills Corp Whittler Mills Co

SASH CORD, WIRE AMERICAN STEEL & WIRE CO Betalebem Steel Co Colorado Puel & Iron Corp MacWayte Co MacWhyte Co Parker (S) Hardware Mfg Corp.

Roebling's (John A) Sons Co Nouthern Mills Corp Upson-Walton Co Wickwire Spencer Steel Die Colorado Fuel & Iron Corp

#### SASH & DOOR, CUT STOCK, **PONDEROSA**

Burke Millwork Co Hines (Edward) Lumber Co Silbernagel (George J) & Sons WEYERHAEUSER SALES CO

#### SASH, GREENHOUSE

urke Millwork Co ole Mfg Co letropolitan Greenhouse Mfg Corp organ Co

#### SASH HOLDERS

Arrow Mfg Co CORBIN (P & F) DIV AMERICAN HOWE CORP CORP Ideal Brass Works Leidgen Specialty Co Rockford Sash Holder Ine Roger Co Inc Vikre (J N) Co Inc

SASH WEIGHTS

P SASH WEIGHTS

Belmont Smellting & Redning Works Institution

Frummond Mig. Co.

Grey Fron Casting Co.

Industrial Iron Works

Jamey & Co.

Johnston & Jennings Co.

Johnston & Jennings Co.

Mational Soak Weight Corp.

Rock Island Millsork Co.

Somerville Iron Foundry Co.

Thayer Foundry Co.

Waterbury Foundry Co.

Yonkers Sash Weight Corp.

Yonkers Sash Weight Corp.

### SAW MILLS, MACHINERY

ALLIS-CHALMERS MFG CO American Sawmill Machine Co American Woodworking Machine Co BERNETT-IRELAND INC Chain Belt Co of Milwaukou Champion Blower & Forge Co Chase Turbine Mfg Co Enterprise Co rise Co or (A B) Co Hyster Co Industrial Iron Works Mitts & Merrill Tower (R J) Iron Works Turner Mfg Co

#### SAW REPAIRS AND ADJUST-MENTS

Atkins (E C) & Co Chattaneoga Saw Works Corley Mfg Co Cunningham Machinery Corey Mag Co.
Conningham Machinery Corp
BISSTON (MENRY) & SONS INC
How (R) & Co Inc
Huther Brothers Saw Mfg Co Inc
Lippert (E T) Saw Co
Miner (J H) Saw Mfg Co
Miner & Son Saw Works

#### SAW SETS

Atkins (E C) & Co Beaver Mfg Co Coriev Mfg Co DISSTON (MENRY) & SONS INC Hanchett Mfg Co Hoe (R) & Co Inc Huther Brothers Saw Mfg Co Inc Millers Falls Co Sandrik Saw & Millers Falls Co Sandvik Saw & Tool Corp SIMONDS SAW & STEEL CO Smith (Seymour) & Son STANLEY WORKS Wardwell Mfg Co Yates-American Machine Co

#### SAW SWAGES & SHAPERS

Corley Mfg Co DISSTON (HENRY) & SONS INC Hanchett Mfg Co Hanchett Mfg Co Huther Brothers Saw Mfg Co Inc Wardwell Mfg Co

#### > SAWS, BAND

ALLIS-CHALMERS MFG CO American Woodworking Machine Co Atkins (E C ) & Co ATLAS PRESS CO BUICE-CRAME CO BUICE-CRAME CO Capewell Mfg Co Chattanooga Saw Works C H & E Mfg Co

Duro Metal Products Fay (J A) & Egan Co Fay (A) & Egan Co Forthery Mig Co Foster Mig Co Foster Mig Co Graham (Sebn H) & Co Inc Graham (Sebn H) & Co Inc Hecton & Anderson Div St Paul Foundry & How (E) & Co Inc Huther Brothers Saw Mig Co Inc Lipport (E T) Saw Co McDonaugh Mig Co McDonaugh Mig Co McDonaugh Mig Co Onlien-Sindon Mig Co Onlien-Sindon Mig Co Oliver Machinery Co PARKS WOODWORKING MACHINE CO ROCKWELL MFG CO DELTA POWER TOOL SIMONDS SAW & STEEL CO

Toolkraft Corp
WALKER-TURNER DIV KEARNEY &
TSECKER CORP
WALLACE (1 0) & CO
Woods (8 A) Machine Co
Yates-American Machine Co

#### SAWS, BENCH

American Woodworking Machine Co Areads Mfg Div Rockwell Mfg Co Atkins (E C) & Co ATLAS PRESS CO Oliver Machinery Co PARKS WOODWORKING MACHINE CO ROCKWELL MFG CO DELTA POWER TOOL BIV WALKER-TURNER CO DIV KEARNEY & TRECKER CORP WALLACE (J D) & CO Wilson Saw Div Media Machine Works Yates-American Machine Co

#### SAWS, BUCKING

Atkins (C) & Co Cummings Machine Works DISSTON (MENRY) & SONS DISSTON (MENRY) & SONS Div
MOMELITE CORP
Lowther (Harry A) Co
MALL TOOL CO
MILL Mine Supply Co
Oblen-Bishop Co
Sandrik Saw & Tool Corp
SIMONOS SAW & STEEL CO

#### > SAWS, CHAIN, TREE FELLING & BUCKING, POWERED

Atkins (E C) & Co Cummings Machine Works DISSTON (HERRY) & SONE INC General Steel Warehouse Co Gensco Tool Dis Hansen Machinery & Supply Co HOMELITE CORP HOMELITE COMP
Jacques Power Saw Co
Lombard Governor Corp
Lowther (Harry A) Co
MALL 1004 CO
MALL 1004 CO
MALL 1004 CO
MIL A Mine Supply Inc
Oltawa Mig Co
Bood Prenice Corp
Vision non Works Co
Vision non Works Co
Witte Engine Works Div Oil Well Supply Co

#### SAWS, CHAMFERING

Atkins (E C) & Co Huther Brothers Saw Mfg Co SIMONDS SAW & STEEL CO

#### SAWS, CIRCULAR DADO

nerican Saw Mill Machinery Co nerican Woodworking Machine Co kins (E C) & Co BOICE-CRANE CO Chattanooga Raw Works
OEWALT INC
OEWALT INC
OEWALT INC
DISSTBN (HENRY) & SONS INC
OEWALT INC
OEWALT
OEWALT Other-Bishop Mfg Co PORTER CABLE MACHINE CO St Paul Foundry & Mfg Co SIMONDS SAW & STELL CO STREET Allow Metals Com Syracuse Alloy Metals Corp.
WALKER-TURNER CO DIV KEARNEY &
TRECKER CORP WALLACE (J D) & CO Wilson Saw Div Media Machine Works Yates-American Machine Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

## CONSOLIDATED MACHINERY & SUPPLY CO LTOWN TO A SONS INC DISSTANC (HENRY) & SONS INC TOOTH

TOOTH
American Saw Mill Machinery Co
American Woodworking Machine Co
Acting (EC) Co
Chattanogus Saw Works
Chattanogus Saw Works
Chattanogus Saw Works
Co
Chattanogus Saw Works
Co
Hother Bruthers Saw Mire Co
Hother Bruthers Saw Mire Co
Miner & Bon Saw Works
Onliner G. Bl. Saw Mire
Co
Miner & Bon Saw Works
Onliner Jishoo
S Wheland Co Yates-American Machine Co

#### SAWS, CIRCULAR, SOLID TOOTH

Albertson & Co Inc American Saw Mill Machinery Co American Woodworking Machine Atkins (E C) & Co Beach Mfg Co Beach Mfg to BOICE-CRANE CO hattanoga Saw Works
H & E Mfg Co
ONSOLIDATED MACHINERY & SUPPLY CO
LTD CONSULTANCE OF CO-COUNTY OF CONTROL OT CONTROL OF CONTR Lippmann Engineering Works
WALL TOOL CO
MASTER WOODWORKING NFG CO Media Machine Works In Miner (J H) Saw Mfg Co Miner & Son Saw Works Union-Bishop Co
PARKS WOODWORKING MACHINE CO
POWER (L) & Co POWER (L) & CO PTI Inc ROCKWELL MFG CO DELTA POWER TOOL RECKWELL MFG CO DELTA POWER TOOL DIV St. Paul Foundry & Mfg Co Sandvik Raw & Tool Corp SIMONDS SAW & STELL CO WILLIAM CONTROL OF THE CARE COPY OF THE WALLACE (J D) & CO Wilson Saw Div Media Machine Works Tates-American Machinery Co

#### SAWS, COPING Forsberg Mfg Co

### SAWS, CUTOFF, POWERED

American Woodworking Machine Co Beach Mfg Co BBICE-CRANE CO Saw Works CHAEMIGCO C H & E MIG CO C K L Machinery Co CONSOLIDATED MACNINERY & SUPPLY CO Corley Mig Co
DEWALT HEC
DISATON (HEARY) & SONS INC
ERRIS SUPPLY CO
Fray (J A) & Egan Co
Fray (J A) & Egan Co
Fronders Mig Co
Mig Co
Heston & Anderson Div St Paul Foundry &
Mig Co
Hoe (R) & Co
Holmes (E & R) Machinery Co Inc
Holmes (E & R) Machinery Co Inc
Holmes (E & R) Machinery Co
Matthew Machine Works
Media Machine Co
Oliver Machinery Co
Peter (C O) Machinery

Porter (C 0) Machinery Co ROCKWELL MFS CO BELTA POWER TOOL DIV
St Paul Foundry & Mfg Co
Sandrik Saw & Tool Corp
SIMONDS SAW & STEEL CO Stetson-Boss Machine Co
WALKER-TUBBER CO DIV KEARNEY &
TRECKER CORP
WALLACE (J B) A CO
Wilson Saw Div Media Machine Works
Woods (S A) Machine Co
Tates-American Machine Co

#### SAWS, FOLDING COLDREATT TOOL CO.

### SAWS, GROOVING

American Woodworking Machine Co Atkins (E C) & Co Beach Mfg Co Chattanora San West law Works Chattanoga Saw Works
DEWALT INC
DISSTON (HENRY) & SONS INC
Fay (JA) & Egan Co
Hoe (B) & Co
Huther Bothem Saw Mfg Co
Misener Mfg Co

Oblen-Blabop Co SIMENDOS SAW & STEEL CO WMALKER-TURNER CO DIV KEARNEY & THECKER CORP WALLACE (JO NEF CO Wilson Saw Dir Media Machine Works Woods (8 A) Machine Co Yates-American Machine Co

#### SAWS, HACK

Atkins (E C) Co Bridgeport Hardware Mfg Corp Clemson Brothers Inc Consolidated Tool Works Crescent Tool Co DISSTON (NENRY) & SONS INC. Porsberg Mfg Co
Graham (John H) & Co
K D Mfg Co
Lipe-Rollway Corp.
Mephisto Tool Co
Millers Falls Co
Parker Mfg Co
Proto Tool Co Proto Tool Co
SIMONDS SAW & STEEL CO
SYRECUS Alloy Metals Corp.
Starrett (L S) Co
United Wire Goods Mfg Co Inc
Victor Naw Works Inc.
Wilson Hardware Mfg Co

#### SAWS, HAND

Allway Mfg Co American Saw & Mfg Co Atkins (E C) & Co Akkins (E C) & Co Capwell Mig Co DISSTON (HENRY) & SONS INF GOLDBLATT TOBL CO Graham (John H) & Co Ohlen-Bishop Mig Co Pennsylvania Saw Corp Sandrik Saw & Tool Corp SIMONDS SAW & STEEL CO

SAWS, HOLE

BLACK & DECKER WFG CO Circo Tool Co DISSTON (NEMRY) & SONS INC Millers Falls Co Misener Mfg Co

#### SAWS, JIG, POWERED

ATLAS PRESS CO RILAS PRESS CO BOICE-CRAME CO BOICE-CRAME CO DISSTON (MEMBY) & SONS INC DREMEL MFG CO Oliver Machinery Co WALKER-TURNER CO DIV KEARNEY & TRECKER CORP

#### SAWS, MITER

American Woodworking Machine (
Atkins (E C) & Co
BBICE-CRANE CO
DEWALT INC
DISTON (MENRY) & SBMS INC
Hot (E) & Co
Huther Books orking Machine Co Hother Brothers Saw Mfg Co MILWAUKEE ELECTRIC TOOL CORP Gilen-Bishop CO
PORTER CABLE MACHINE CO
SIMONDS SAW & STEEL CO
SIMONDS SAW & STEEL CO
STANLEY FOOLS DIV STANLEY WORKS
WALKER-TURNER CO DIV KEARNEY &
TRECKER COMP
WALLACE () D) & CO
WILDON SAW DIV Media Machine Warks

SAWS, MULEY Ohlen-Bishop Co SIMONDS SAW & STEEL CO

SAWS, PORTABLE ELECTRIC

American Woodworking Machine Co Atkins (E C) & Co Beach Mfg Co Beach Mfg Co
BLACK & DECKER MFG CO
BRADFORD MACHINE TOOL CO Chicago Pressussit Tool Co Camagi Lipate Markinery & SUPPLY CO CHMONIC-CHICAGO CORP CUMMINS PORT-ARLE TOOLS DIV DEWALT HE DEWALT HE Frobery Mig Co Files-Arm Mig Co Files-Arm Mig Co Heston & Anderson
INDEPENDENT PNEUMATIC TOOL CO
MALL TOOL CO
Millers Falls Co
MILWAUKEE ELECTRIC TOOL CO
Rotable Plentric Tools PORTER-CABLE MACHINE CO SKILSAW INC Speed-Way Mfg Co STANLEY ELECTRIC TOOLS DIV STANLEY WHEKS
SYNTEON CO
U S Electrical Tool Co
Van Doru Electric Tool Co
Vulcan Iron Works Co
WALLACE (J D) & CO

SAWS, RADIAL

American Moderning Machine Co Beach Mir Co CHRSGLIGATED MACHINERY & SUPPLY CO CHRSTRUCTION MACHINERY CO CUMMINS-CHICAGO CORP CUMMINS PORT-ARLE TOOLS DIV DEWALT INC. Flex-Arm Mig Co Flex-Arm Mig Co Flex-Arm Mig Co FIEXAM CO PORTER CABLE MACHINE CO Red Star Products Inc ROCKWELL MFG CO DELTA POWER TOOL SKILSAW INC WALKER-TURNER CO DIV XEARNEY & TRECKER CORP WALLACE (J B) & CO Wilson Saw Div Media Machine Works

SAWS, RIP

Atkins (E C) & Co Beach Mfg Co CH & E Mfg Co CONSOLIDATED MACHINERY & SUPPLY CO

CONSOLIDATED MACHINERY & SUPPI Corley Mg Co Dependable Machine Co Dewact Mg Co Dewact Mg Co Forders Mg Co Forders Mg Co Greenier Tool Co How (M) & Co Newman Machine Co Oliver Machinery Co SIMBROS SAW & STEEL CO SIMBROS SAW & STEEL CO WALLAGE UP & CO WALLAGE UP & CO WALLAGE UP & CO WALLAGE UP & CO STAR SAW & STEEL CO WALLAGE UP & CO SAW SAW & STEEL CO WALLAGE UP & CO WALLA

SAWS, SCROLL
RECKWELL MFG CO DELTA POWER TOOL

SAWS, SWING

American Woodworking Machine Co Beach Mfg Co C H & E Mfg Co CONSOLIDATED MACHINERY & SUPPLY CO CONTROL Machinery Co Corinth Machinery Co
Coley Mig Co
DISSTON (MENRY) A SONS INC
DISSTON (MENRY)
Fay (3 A) & Egen Co
Filer & Romell Co
Filer & Romell Co
Mig Co
Annews Mig Co
An Oliver Machinery Co
ROCKWELL MFG CO DELTA POWER TOOL
DIV Tannewitz Works Woods (S A) Machine Co Yates-American Machine Co

#### SAWS, TILTING ARBOR TABLE

American Woodworking Machine Co Beach Mrg Co BOICE-CRANE CO BOICE-CRAME CO
C H & E MIG CO
CONSOLIDATED MACHINERY & SUPPLY CO
CONSTRUCTION MACHINERY SALES CO
DEWALT INC
ENNIS SUPPLY CO
Fag (J A) & Egan Co St Paul Foundry & Mig Co WALKER-TURNER CO DIV KEARNEY & TRECKER CORP WALLACE (J D) & CO WHITNEY (BAXTER D) & SON INC Vater-American Machine Co

#### > SAWS & CUTTING WHEELS MASONRY

Atkins (E C) & Co Champion Mfg Co CLIPPER MFG CO EMNIS SUPPLY CO EVEREADY BRIKSMAW CO Martin Fireproding Co Stone Machinery Co Ine Victor Engineering Corp

#### SCAFFOLDING, SCAFFOLDS, AND BRACKETS

AND SKACKLI
Arms Scaffold Co Inc.
Advance Equipment Mfg. Co
Alast Building Bracket Co
American Ladder Co
American Ladder Co
Amdon Sales Co
Andernon (John E) Co
Baker-Borst Inc
Bathock (W W) Co
Baker-Borst Inc
Bathock Mfg. Co
Blain Mfg. Co

reper Brothers Whiting & Co. Breyer Brobber Wilting & Co Caster Moid & Macline Co Clark (J B) Co Coner Steel & Wire Co Du-All Scaffold Bracket Co Fine (A W) Co Gabriel Seel Co Gabriel Seel Co Guben Mig Co Holtand Mig Co Holtand Ladder & Mig Co Holtand Ladder & Mig Co Holland Ladder & Mig Co Marvel Equipment Michigan Ladder Co Moulton Ladder Mig Co Newark Ladder & Bracket Co PATENT SCAFFOLDING CO INC PITTSBUBEN PLATE GLASS CO PATEBURGH Variable Jack Co Reliable Jack Co Reliable Jack Co Rich Ladder & Mig Co SAFWAY STEEL PRODUCTS STEADFAST EQUIPMENT CO STEEL SCAFFOLDING CO INC Culley (John S) Ladders Co Inc Manufacturing Corp. WAGNER MFG CO

Washingare Products Corp SCALES, BATCHING

Buffalo Scale Co Butler Bin Co Fairbanks Morse & Co Fairbanks Morse & Howe Scale Co Johnson (C B) Co

### SCALES, COUNTER

Barnes Products Inc Colloid Equipment Co Dayton Scales Co Detecto Scales Inc Fairbanks Morse & Co Hanson Scale Co Hanson Scale Co Howe Scale Co Pelouze Mfg Co Penn Scale Mfg Co Toledo Scale Co Triner Scale & Mfg Co

#### SCALES, HOPPER

Buffalo Scale Co Butler Bin Co Fairbanks Morse & Co Fleming Mfg Co Fleming Mfg Co Howe Scale Co Johnson (C S) Co Louden Machinery Co

SCALES, MOISTURE CON-TENT, LUMBER

Colloid Equipment Co Ine Detecto Scales Inc Exact Weight Scale Co Fairbanks Morse & Co Grand Eapids Vapor Kilm Moore Dry Kiln Co Toledo Scale Co

## SCALES, PLATFORM, PORT-

American Scale Co Detecto Scales Inc Div Jacobs Brothers Co Fairbanks Morse & Co Hansons Scale Co Hanses Scale Co
Home Scale Co
Johnson (C B) Co
Toledo Scale Co
YALE & TOWNE MFG CO MATERIALS
HANDELING BIV

SCALES, TRUCK

American Scale Co
Bonded Scale & Machine Co
Buffalo Scale Co
Butler Bin Co
Fairbanks Morse & Co
Howe Scale Co

SCRAPERS, FLOOR

Fletcher Terry Co Heller Brothers Co Holt Mfg Ca Hook Scraper Mfg Co Millers Falla Co MILIETS FAILS TO RED DEVIL TOOLS STANLEY TOOLS DIV STANLEY WORKS Starrett (L 8) Co

SCRAPERS, FOOT

Decatur Iron & Steel Co Eron Mfg Co Grey Iron Casting Co Lawrence Brothers RICHARDS-WILCOX MFG CO Standard Bronne Co

SCRAPERS, PAINT Bridgeport Hardware Mfg Corp Clarke Sanding Machine Co Fletcher Terry Co Heller Brothers Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Book Scraper Mfg Co PITTSBURGH PLATE GLASS CB RED DEVIL TOOLS STANLEY TOOLS DIV STANLEY WORKS

SCRAPERS, POWERED

ALLIS-CHALMERS MFG CO ummins Engine Co Inc (NITNEY (BAXTER B) & SONS INC.

SCRAPERS, WOOD

Black Panther Tool Co DISSTON (MENRY) & SONS INC Pletcher Terry Co Glaziers' Tool Mig Cesp Heller Brothers Co Lamson & Goodnow Mig Co Millers Falls Co RED SEVIL TOOLS Sandvik Row & Tool Corp Warner Mig Co

SCREEDS, METAL BASE

Alabama Metal Lath Co Allen Steel Products BOSTWICK STEEL LATH CO CECO STEEL PRODUCTS CORP GETTY (N S) & CO INC INLAND STEEL PRODUCTS CO NATIONAL GYPSUM CO Richmond Screw Anchor Co Inc STANLEY TOOL DIV STANLEY WORKS TRUSCON STEEL CO U'S Gypsum Co Wheeling Corrugating Co

SCREEN WIRE STRETCHERS FASTENER CORP MARKWELL MFG CO

SCREENING, INSECT WIRE

Ace Window Screen Co of America Aluminum Co of America American Brass Co American Wire Fabrics Corp CURTIS COS INC
Cyclone Fence Div American Steel & Wire Co Cyclone Fence Div American other a Trite Driver-Harvis Co Gilbert & Beennett Mfg Co Hanover Wire Cloth Div Continental United Industries Co Inc Industries to some Heilig Revolence Corp. Heilig Corp. Heilig Corp. Kaiser Aluminum & Chemical Corp. Kaiser Aluminum & Chemical Corp. Keystone Steel & Wire Co. Keystone Wile Cloth Co. Michael Window Bervice Co. Metal Window Del. Co Newark Wire Cloth Co New York Wire CLOTN CO NICHOLS WIRE & ALUMINUM CO Orange Screen Co Pacific Wire Products Co Pennwoven Inc racine vitte froducts Co
Pennuwen Inc.
Pequet Wire Cleit Co Inc
Reynolds Wire Co
Stone Co
Servent and Fabricated Metals Co
Servent American Co
Smith (F P) Wire & From Works
Starge Wire Co Ident & Servent Co
Valentine Equipment Co
Valentine Equipment Co
Valentine Equipment Co
Warp Strukers
Wickwitz Resolvert Inc
Wickwitz Resolvert Inc
Wickwitz Resolvert Reel Dir Colorado Fuel &
Lino Corp.

#### SCREENING, PLASTIC, WIRE REINFORCED

Haway Mirr Celatics Corp of America Plantics Div CHICOPEE WFG CORP OF GEORGIA Dow Chemical Co Firestons Industrial Products Un Firestons TITE & Bubber Co KEYSTONE WIRE CLOTH CO LUMITE DIV CHICOPEE MFG CORP NEW YORK WIRE CLOTH CO Plattle Woven Products Seneca Wire & Mfg Co SUPERIOR FIREPLACE CO Swift Mfg Co Warp Brothers

SCREENS, CHIMNEY

#### SCREENS, COAL, SAND, GRAVEL, ETC

Atlas Conveyor Co Haiss (George) Mfg Co Div Pettibone Mulliken Corp
Hendrick Mfg Co
Jeffrey Mfg Co
Link-Belt Co
Meyern (Fred L) Mfg Co
Roebling's (John A) Sons Co

Sackett (H B) Screen & Chute Co Universal Engineering Corp Wickwire Spencer Steel Div Colorado Fuel & Iron Corp

#### SCREENS, TENSION

Columbia Mills Inc KEYSTONE WIRE CLOTH CO IC B P MINAURCE SLEET CO Lockhart Mfg Corp NEW YORK WIRE CLOTN CO RUDIGER-LANG CO Butzke Weatherstrip Mfg Co

#### SCREWDRIVERS

Barcalo Mfg Co BLACK & DECKER MFG Co Bridgeport Hardware Mfg Corp ntrogeport maruware any corp Crescent Tool Co Damascus Steel Products Corp DISSTON (MENRY) & SONS INC Fairmount Tool & Forging Co Forberg Mfg Co Fuller Tool Co Glaziers' Tool Mfg Corp Greenlee Tool Co MALL TOOL CO Mephisto Tool C Millers Falls Co North Brothern Mfg Co Owatonna Tool Co Ox-Wall Tool Co rker Mfg Co & C Hand Forged Tool Co ck Stow & Wilcox Co nto Tool Co incr-Trail aincy-Tools red & Prince Mfg Co Rugol Co SKILSAW INC Slaymaker Lock Co STANLEY WORKS Tuck Mfg Co Tuck Mfg Co Union Hardware Co United Wire Goods Mfg Co Vichek Tool Co Wilde Drop Forge & Tool Co

#### SCREWDRIVERS, PORTABLE, ELECTRIC

BLACK & DECKER MFG CO Hanters' Tool Mfg Co MALL TOOL CO MILWAUKEE ELECTRIC TOOL CORP STANLEY ELECTRIC TOOLS DIV STANLEY WORKS U S Electrical Tool Co

#### **▶** SCREWDRIVERS, RATCHET

American Swiss File & Tool Co Greenles Tool Co Kipton Industries Millers Falls Co North Brothers Mfg Co Div Stanley Tools Ox-Wall Tool Co. STABLEY TOOLS DIV STABLEY WORKS

#### **▶** SCREWS

Ajax Hardware Mfg Corp American Serew Co Atlantic Serew Works Atlas Bolt & Serew Co Braun (J G) Co Braun (J G) Co Bridgeport Brass Co CHASE BRASS & COPPER CO CHASE BRASS & COPPER CO
CLARK BROTHER BOIL CO
CONTINENTS BOIL CO
CONTINENTS BOIL CO
EIGN TOOL & SCRW COPP
GENERAL CASH ASSALL (1988) 18C
LAMBON & SERVING CO
LAMBON & SERVING CO
LAMBON & SERVING CO
LAMBON & SERVING CO
AND CONTINENTS BOIL CO
AND COMPENS BOIL
AND e Co Gensco Tool Div NATIONAL LUCK CO NATIONAL Screw & Mrg Co PAINE COMPANY Parker (8) Hardware Mrg Corp Pheoli Mrg Co Bockford Screw Products Co Mockford Serew Freducts Co. St Louis Serew & Bolt Co. SOUTHERN SCREW COMPANY Southington Hardware Mfg Co. Stronghold Serew Products Inc. United, Screw & Bolt Corp.

### SEALERS, SYNTHETIC RESIN

#### SEPTIC TANK FERMENTA-TION COMPOUNDS Thomas Sanitary Products Co

SEWER JOINT COMPOUNDS

Anti-Hydro Waterprooming to FLINTKOTE CO JOHNS. MANVILLE CORP Nulsem Products Corp Relily Tar & Chemical Corp Robinson Clay Product Co Universal Sewer Pipe Corp

#### **▶ SHADE ROLLERS & FIXTURES**

ailey & Weston artshorn (Siewart) Co owe (Henry) Mfg Co ermont Shade Roller Co

#### > SHADES, PLASTIC FOR STORE **WINDOWS**

#### > SHADES, PORCH

Aeroshade Co HOUGH SHADE CORP Shredwood Curtain Co Warren Shade Co

#### SHADES, WINDOW

Aeroshade Co Bailey & Westen Bills Venetian Bilnd Co Brueman (Charles W) Co Clopar Corn Columbia Mills Inc Columbia Costed Fabrics Corp Did'ont de Venoure (E 1) & Co Inc Harmon (\* 8) Co artsborn (Stewart) Co BUGH SHADE CORP ane Mfg Corp olker (William) & Co

#### > SHAFTS, FLEXIBLE

MALL TOOL CO WALKER TURNER CO DIV KEARNEY & TRECKER COMP

#### > SHAKES, CEDAR, STAINED

Butler-McDougall Mfg Co Ltd
Canadian Forest Products Ltd Hunting-Merrit Shingle Div
Capilano Shingle Co Ltd
Capitalo Edwar Co Colonial Cedar Co CRES-DIFT CO INC Exercit Shingle & Shake Co Jamison Lumber & Shingle Co McNair (Robert) Shingle Co McNair (Robert) Shingle Co Olympic Stained Products Co PERMA-PRODUCTS CO PORTIAND Shingle Co Portland Shingle Co Preservative Paint Co Smith (M R) Lumber & Shingle Co West Coast Stained Shingle Co WEYERWAEUSER SALES CO

#### SHAMPOO, SPRAY

T A S BRASS A BRONZE WORKS INC

#### **▶ SHAPERS**

ATLAS PRESS CO PORTER CABLE MACHINE CO ROCKWELL MFG CO DELTA POWER TOOL DIV WALLACE (J D) & CB WHITNEY (BAXTER D) & SONS INC

#### > SHARPENERS, KNIFE

Atkins (E C) & Co BENR-MANNING CORP DIV MORTON CO BENR-MANNING CORP DIV MORTON CO Sefety Emery Wheel Co Inc Bridgeport Safety Emery was Dazey Corp Dependable Machino Co Inc Ekco Products Co MALL TOOL CO MALL TOOL CO New England Carbide Tool Co Inc Simonds Abrasive Co Div Simonds Saw & TURNER & SEYMOUR MFG CO

#### > SHARPENERS, SAW

Atkins (E C) & Co Beaver Mfg Co BELSAW MACHINE CO Chattanous Bas Works
Chattanous Bas Works
DISSIDM (MEMBY) 4 SOMS INC
DISSIDM (MEMBY) 4 SOMS INC
DISSIDM (MEMBY) 4 SOMS INC
HARDET Brothers Baw Mfg Co Inc
Mills 1991 Co
Mills 1991 Co
Rect Prentice Corp
Tracco Products Treyco Products
Wardwell Mfg Co
Yates-American Machine Co

#### > SHEARS, METAL CUTTING, ELECTRIC

BLACK & DECKER MFG CO

### **▶** SHEATHING, ASBESTOS

Asbestos Asphalt & Insulation Inc Badger Corrugating Co CAREY (PHILIP) MFG CO CELOTEX CORP

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Davis Plywood Corp FLINTKOTE CO JOHNS-MANVILLE CORP KEASEY & MATTISON CO NATIONAL GYPSUM CO MUNICEDID CO Standard Asbesios Mig Co

#### SHEATHING, BOARD, ASPHALT, RIGID

AIT-O-CO CO
BIRGO 4 SHE HE AS SHE AS SHE AS SHE AS SHE AS SHE CAREY (PHILIP) MFG CO
CLEOTEK COOP PRODUCTS CORP
FLIATKOTE CO
INSULITE DIV MINNESOTA & ONTARIO
PAPER CO
ISSULITE DIV MINNESOTA & ONTARIO
PAPER CO
ISSULITE DIV

JOHNS-MANVILLE COMP
Keystone Asphalt Products C.
Logap-Long Co
Meadows (W B)
National Mfg Corp
Nelson (B F) Mfg Co
Plastegon Wall Board Co
PROTECTIVE PAPERS INC
RUBEROID CO
U S Gypsum Co

SHEATHING, BOARD, FIBER
ARMSTRONG CORK CO BUILDING MATERIALS DITMENT THE
CARTY (FMILEP) MFG CO
CELSTEX CORP
FIT-TOE INDUSTRIES BOARD CO CELOTEX CORP FI-TEX INJUSTIC GO FI-INTKOTE CO HOMASOTE CO INSULITE DIV MINNESDTA & ONTARIO PAPER CO JOHNS. MANVILLE CORP MATIGNAL GYPSUM CO Plastergon Wall Board 6 UPSON CO WOOD CONVERSION CO

#### > SHEATHING, GYPSUM

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP Grand Ranida Plaster Co tirand Rapida Plaster Co NATIONAL GYPSUM CO Pabeo Products Inc Paheo Products Inc Pacific Portland Cement Co Schumacher Wall Board Corp U S Gypsum Co

#### SHEATHING, INSULATING BOARD, TREATED

AIT-O-Cel Co ARMSTRONG CONK CO BARRETT DIV ALLIED CHEMICAL & DYE MARKETT DIV ANNUAL CONCERNATION OF CORP.
GERT OF CONCERNATION U S Gypsim Co
U S MENGEL PLYWOODS INC
U S PLYWOOD CORP
WOOD CONVERSION CO

#### > SHEETS, ALUMINUM, CORRUGATED

Aluminum Co of America CECO STEEL PRODUCTS CORP Cupples Co
New Holland Metals Co
REYNOLDS METALS CO
Southern States Iron Boofing Co

### SHEETS, ALUMINUM. FLAT

Braseo Mfg Co CECO STEEL PRODUCTS CORP KAISER ALUMINUM & CHEMICAL CORP NATIONAL ALUMINUM PRODUCTION OF MICHOLS WIRE & ALUMINUM CO BEYNOLDS METALS CO BUILDING PROD-UCTS DIV Southern States Iron Boofing Co

#### SHEETS, BLACK

Alan Wood Steel Co CECO STEEL PRODUCTS CORP CONIMENTAL Steel Corp INLAND STEEL PRODUCTS CO REPUBLIC STEEL CORP TENNESSEE COAL IRON & BAILBRAD CO nited States Steel Co heeling Corrugating Co

#### > SHEETS, IRON & STEEL, GALVANIZED

Allegheny Ludium Steel Co Armco Drainage & Metal Products Inc Badger Corrugating Co Bethlebem Steel Co CECO STEEL PRODUCTS CORP Cincinnati Sheet Metal & Booth Continental Steel Corp Decatur Iron & Steel Co Jary-Pioneer Steel Co INLAND STEEL PRODUCTS CO Inland Steel Co International Steel Co Klauer Mfg Co Mid-States Steel & Wire Co New Holland Metals Co REPUBLIC STEEL CORP Ryerson (Joseph T) & Son Inc ST PAUL CORRUGATING CO Shoffing Steel Corp. SOULS STEEL CO
TENNESSEE COAL IRON & RAILROAD CO
TRUSCON STEEL CO
United States Steel Co United States Steel Co Wheeling Corrugating Co Youngstown Sheet & Tube Co

#### SHEETS, PLASTIC

Actna Plywood & Veneer Co ARBORITE CO Convolidated Water Power & Paper Co Consolidated Water Power & Paper Co Continental Can Co Davies (J A) & Co FORMICA CO GENERAL ELECTRIC CO HASKELITE MFG CORP MATIONAL PLASTIC PRODUCTS CO ONIO RUBBER CO Panalste Div St Regis Sales Corp UNIO MUBBER CS
Pancipte Div N. Begis Nales Corp
RSDDIS PLYWSOD CORP
U.S. PLYWSOD CORP
U.S. PLYWSOD CORP
WESTIRGHOUSE ELECTRIC & MFG CS
WOODALL INDUSTRIES

#### SHEETS, STEEL, CORRUGATED

Armos Steel Corp Badger Corrugating Co BENGER MFG DIV NEPUBLIC STEEL CORP Bethlehem Steel Co CECS STEEL PRODUCTS CORP Chency Industries Co Cincinnati Sheet Metal & Roofing Co Continental Steel Corp Decatur Iron & Steel Co Stanite City Steel Co New Holland Metals Co REPUBLIC STEEL CORP Revere Copper & Brass Inc ST PAUL CORRUGATING CO Couthern States Iron Roofing Co FERNESSEE COAL IRON & RAILROAD CO United States Steel Co Wheeling Corrugating Co Youngstown Sheet & Tube Co

#### > SHELF STANDARDS, ADJUST-ABLE

Alkeo Mfg Co Garden City Plating & Mfg Co Hirsch (S A) Mfg Co Knape & Vogt Mfg Co Reflector Hardware Corp Wilmac Metal Products

#### SHELLAC

Fortillar

Barrett Varnish Ce
Berry Brothers Inc
Central Paint & Varnish Works
Chicage Bronze & Color Works
Chicage Bronze & Color Works
DuPont (E. I) I de Nemours & Ce
Gillespie Varnish Ca
Gilden Co
Horn (A C) Co
Horn (A C) Co
O'Brien Corp
Patterson-Sargent Co O'Brien Corp Patterson-Sargent Co PITTSBURGH FLATE GLASS CO Sheffield Bronze Paint Corp U S Gutta Percha Paint Co Valentine & Co Inc Vita-Vat Corp Wellman Products Co Woodfinishing Products Co Zinner (William) & Co Inc

#### > SHELVES, REVOLVING CABINET

Ames (W R) Co Lyon Metal Products Inc

MULLINS MFC CO Washington Steel Products Inc

## SHELVING, ADJUSTABLE

Adams Co Busch (A G) & Co Inc Heller (W C) & Co Johnswood Co Knape & Vegt Mfg Co MACKLANBURG-DUNCAN CO

#### SHELVING, GLASS

American Window Glass Co Cadillac Glass Co Columbia Metal Box Co Heller (W C) & Co LIBBEY-OWENS-FORD GLASS CO PITTSBURGH PLATE GLASS CO Ruslander & Sons Inc Warren (J D) Mfg Co

#### ▶ SHELVING, PREFABRICATED

Ames (W E) Co Hinos (Edward) Lumber Co

### SHELVING, STEEL Adams Co BERGER MFG CO DIV REPUBLIC STEEL CORP

Colf

Politze Metal Furniture Co g
Equiple Dir Aurera Equipment Co
Ercil Metal Calniert Co
Frick-Gallagher Mfg Co
Heller W C, b & Contac Co
Lyon Metal Products Inc
Precision Equipment Co
Bed Tiper Products Inc
Realander & Sous Inc
Stackhim Corp
Trans Co
T Trane Co
Tranessee Stone Co Inc
Washington Steel Products Inc
Wollacger Stoel Corp

#### SHELVING, WOOD

Adelphian Mill
Carr & Moehl Co
Cole Mig Co
CUMTIS CMS INC
Engineers Plywood Products Co
Frick-Gallagher Mig Co
Hines (Edward) Lombor Co
Kinson Pine Mills Co
LONG-MELL LUMBER CO
Marquart Mills Co Marquart Millwork Co Mauk-Seattle Lumber Co Willamette Valley Lumber Co Wilmac Metal Products

#### SHIELDS, EXPANSION BOLT

Arro Expansion Bolt Co Chicago Expansion Bolt Co CORBIN (P & F) DIV AMERICAN HARD-WARE CORP Diamond Expansion Bolt Co Halbas Instattics Jose PAINE CO Polis (J D) Mfg Co Polis (J D) Star Expansi on Products Co Inc

#### SHIELDS, TERMITE

SISALKRAFT CO Timber Engineering Co

## SHINGLES, ASBESTOS-

ASBESTONE CORPORATION ASBESTOS CO OF TEXAS BARRETT DIV ALLIED CHEMICAL & DYE CORP
CAREY (PHILIP) MFG CO
CELOTEX CORP
FLINTWOTE CO
JOHNS-MANVILLE CORP
KEASBEY & MATTISON CO Supradur Corp U S Gypsum Co

#### SHINGLES, ASPHALT

American Asphalt Roof Corp BARRETT DIV ALLIED CHEMICAL & SYE BARRET
CO
EIRO SEN INC
CO
EIRO SEN INC
CAREY (PHILIP) MFG CO
CELOTEX CORP
FILINIVATE CO
Ford Roofing Products Co
Ford Roofing Products Co
Globe Roofing Products Co
Filinivation Co
Filinivation Co
Filinivation Co
Filiniva Gold Seal Hoofing Co JOHNS-MANVILLE CORP Lebon Co Logan-Long Co Nelson (B F) Mfg Co Nelson (B F) Mfg Co Pabeo Products Inc #UNERSID CO Tambo Amphalt Products Inc Tamko Asphalt r TEXAS CO Grosum Co

#### SHINGLES, CEDAR, RED

Acme Shingle Co Ltd Agnew Lumber Co Aloha Lumber Co American Stained Shingle Co Arch Cape Shingle Co American Stained Shingle Co Arrh Cape Shingle Co Ayres & Bowen Shingle Co Ltd Bielman-Menke Shingle Co Biledan-Menke Shingle Co Bloedel Stewart & Welch Ltd Ricedel Stewart & Welch Ldd
B L Shingle Co
Bridal Falls Shingle Co
Bridal Falls Shingle Co
Bridal Falls Shingle Co
Bridal Falls Shingle Co
Brown (I C) Shingle Co
Brown (I C) Shingle Co
Ldd Co
Ld Co
Ldd Co
Ld Co
Ldd Co
L Colonial Cedar Co
Colonial Valley Lumber Co
CONNOR LUMBER & LAND CO Corbett Mill Co Corbett Mill Co
CRES-DIFF CB INC
Crescent Shingle Co
Crescent Shingle Co
Crescent Shingle Co
Designa Fir Wholesalers Ine
Estorellie Lumber Co
Fulner Brothers
Forts Shingle Co
Forler Shingle Co
Forler Shingle Co
Grandy Lake Shingle Co
Gray Lumber A Shingle Co
Hammond Codar Co
Hors (Edward) Lomber Co
Horse Horberts Shingle Co
Horse Shingle Co
Horse Shingle Co
Horse Shingle Co
Horse Brothers Shingle Co
Horse Brothers Shingle Co
Horthardon Shingle Co
Horthardon Shingle Co
Lud
Horton Ceder Mig Co Ltd
Horton Ceder Mig Co Ltd
Horton Ceder Mig Co
Lud
Horton Hamber & Shingle Co
Lud
Comper Shingle Co
Lud
Horton Coder Mig Co
Lud
Horton Coder Co
Lud
Horton Coder Code cybold-Smith Shingle Co LANGE SELL LUMBER CO
Longive Shingle Co
Longive Shingle Co
Longive Shingle Co
Longive Shingle Co
Mark-Seattle Lomber Co
Mark-Seattle Lumber Co
McCarter Shingle Co Ltd
McCarter Shingle Co Ltd
Michael Sebeser Inc
Miller & Seattle Lumber Co
Miller & Seattle Shingle Co
Miller & Seattle Co Facility Timber Co
Packwood Shingle Co
Packwood Shingle Co
Packwood Shingle Co
Phoenix Shingle Co
Phoenix Shingle Co
Quality Shingle Co
Quality Shingle Co
Rainel Shingle Co
Riverside Shingle Co
Riverside Shingle Co
Rivers Rower Bollings Co

Rows Shingle Co

8 & 8 Shingle Mg

8 Shingle Co

9 Shingle Mg

9 Shingle Co

#### > SHINGLES, CEDAR, RED, STAINED

WEYERHAEUSER SALES CO

American Stained Shingle Co Canadian Ferent Products Ltd Hunting-Mer-rit Shingle Div

Capilano Shingle Ce Lid
Colonial Cedar Co
CREG-01PT CO INC
Daris Sales Agency
Ilyas Realinas
Everest Shingle & Shake Co
Georgia-Pacific Pirmend & Lumber Co
Georgia-Pacific Pirmend & Lumber Co
Kendell Lumber Corp.
Los Shingle Corp. Kendall Lumber Corp
Lion Shingle Co
Linn-Reil Lumber Co
Linn-Reil Lumber Co
Linn-Reil Lumber Co
Linn-Reil Lumber Co
Linn-Reil Co
Linn-R WEYERHAEUSER SALES CO

#### SHINGLES, PORCELAIN ENAMEL

#### SHINGLES, REDWOOD Silbernagel (George J) & Sons Co-Union Lumber Co

## SHINGLES, STEEL GALVAN-

Radger Corrugating Co BERGER MFG CO DIV REPUBLIC STEEL CORP CECO STEEL PRODUCTS CORP Circinanti Shret Metal & Booting Co Clark-Babbiti Industries Inc Edwards Mig Con Correct C Edwards Mfg Co
Gary-Pionore Stoel Corp.
[MLAMD STEEL PRODUCTS CO
HALAMD STEEL PRODUCTS CO
HALAMD STEEL PRODUCTS CO
Mid-States Steel & Wire Co
Northwest Metal Products Inc
Southern States Iron Rooding Co
Wheeling Corrupating Co

#### > SHORES, SAFETY SYMONS CLAMP & MFG CO

> SHORING, CONCRETE SOFFIT FLOOR BLOCK RESIDE WEG CO.

#### SHOVELS, ROCKER, POWERED

#### **SHOWER BATH, CABINETS**

Allen Steel Products
AMERICAN RADIATOR & STANDARD SANITARY CORP Binswanger & Co Clow (James B) & Sens CRAME COMPANY Durst Mfg Co ELIER CO FIAT METAL MFG CO Glauber Brass
Harison Steel Cabinet Co
Ingram-Richardson Mfg Co
Kraus (Walter S) Co
Milwatthee Stamping Co
Northwest Metal Products Ing
O'Morrow W M) & Co
Peerless Steel Equipment Co PITTSBURGH PLATE GLASS CO Bepublic Brass Co
St. Charles Mfg Co
Scoull Mfg Co
Scoull Mfg Co
Shower Door Co
Shower Door Co
Shandard Building Products Co
Standard Steel Cabinet Co
Steel Partitions Inc
Tiletone Co Tiletone Co UNIVERSAL-RUNDLE CORP Weig (Henry) Mfg Co Inc

#### > SHUTTERS, METAL

norm Ricel Products Inc Astron Co FAWNCS MFG BIV FALLS STAMPING & WELDING CO Fries & Son Ricel Construction & Engineering Co Metal Arts Miz Co AIR CONTROL PRODUCTS INC. Co Metal Arts Mfg Co SHEPLER MFG CO Trussbilt Div Siems Bron Inc United Metal Products Inc

### SHUTTERS, WOOD ASTRID CO. CARR ADAMS & COLLIER CO.

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Central Division Co Cole Mig Co CUNTIS COMPANIES INC Farley & Lectacher Mig Co GREGG & SON INC Heinber's Movable Stotlers Himss (Edward) Lumber Co Hottig Mig Sam & Door Co Manquart Millwork Co Morgan Co Quigley (J R) Co Roach & Musser Co Rock Island Millwork Co Silbernagel (George J) & Sons Co

#### SIDING, ALUMINUM

Alson Inc.
Alson Inc.
Alson Inc.
Alson Inc.
Alson Inc.
Co of America.
Compo. Miracle Products On
KAISER ALIWINUM & CHEMICAL CORP
KAWNERG CA
Lifetime Inchastron
Lifetime Inchastron
Assimal Aliminom Products
Now Helland Metals Co
WEYWOLDS METALS CO BUILDING PRODUCTS SIN
Boothern Glaise Inco Monding Co

#### SIDING, ALUMINUM CLAP-BOARD

Childers Mfg Co
KAISEE ALUMINUM & CHEMICAL SALES
CORP
KAWREER CO
New Rolland Metals Co
Potts-Farrington Co

#### SIDING, ASBESTOS CEMENT

ASBESTONE CORPORATION
ASBESTOS CO OF TEXAS
BARRETT DIV ALLIED CHEMICAL & DYE BARRETY DIV ALLIED CHE CORP BIRD A SON INC CAREY (PHILIP) MTE CO CELOTEX CORP FLINTKOTE CO JOHNS-MANVILLE CORP KEASBEY & MATTISON CO Paleo Products Inc Paheo Products Inc RUBERSID CO Smith Ashestos Products Co Inc s Gypsum Co

#### SIDING, ASBESTOS-CEMENT, CORRUGATED

ASBESTOS CO OF TEXAS BARRETT DIV ALLIED CHEMICAL & DYE CREP CAREY (PMILIP) MFG CO Ford Roofing Products Co Ford Roofing Products Co JOHNS-WANVILLE CORP KEASBEY & MATTISON CO MUREREID CO

#### SIDING, ASPHALT, LAMIN-ATED RIGID

BARRETT DIV ALLIED CHEMICAL & DYE SARRET DIVALETE DERICALA STE CAST (PHILIP) MEG CO CELGIEX COMP CERTAIN-TEEP PRODUCTS COMP FLIMITAGTE CO GIODE BOODING PRODUCTS CO INC. INSULITE CO DIV MINNESOTA & ONTARIO PAPER CO

#### SIDING, ASPHALT, PAT-TERNED, INSULATING

American Amphalt Boof Corp.

BARRETT DIV ALLIED CHEMICAL & BYE BIRD & SON INC BIRD & SAW NET

PRINTED MIC CO.

CLEGICE CORP.

CLEGICE CORP.

CERTAIN-TEED PRODUCTS CORP.

CINTAIN-TEED PRODUCTS CORP.

PAPER CO.

DIMES MARVILLE CORP.

PAPER CO.

LOCATION CORP.

LOCATION CORP. 100ES o
Keystone Asphalt Free
Lebon Co
Logan-Long Co
Mastic Aughalt Corp
RATERNAL MFG CORP
Nelmon (B F) MFg Co
Plastergon Wall Board Co
Protective Froducts Co Protective Products Co RUBERGID CO Tamko Asphalt Products Int TEXAS CO U S Gyroum Co Weatherpanel Sidings Inc

### SIDING, IRON & STEEL

AMERICAN STEEL & WIRE CO

Badger Corrugating Co BERGER MFG DIV REPUBLIC STEEL CORP Rethlehem Steel Co
CECO STEEL PRODUCTS CORP
Cincinnati Sheet Metal & Roofing Co COLUMBIA STEEL CO Continental seed Cong Edwards Mfg Co FENESTRA BUILDING PRODUCTS Fries & Son Steel Construction & Engineering Co Granite City Steel Co Houston Blow Pipe & Sheet Metal Works Illinois Zinc Co INLAND STEEL PRODUCTS CO INLAND STEEL FOR THE PRODUCT DIV.
KINDER MEY CO. THE PRODUCT DIV.
LA Crosse Steel Boofing & Corrupating CoMACONDER INC.
MICHOLS WIRE & ALUMINUM CORECES Steel & Mig CoREPUBLIC STEEL CORP.
ST PAUL CORNUCATING COSTEEL CORP.
STEEL Southern States Iron Boofing Co TENNESSEE COAL INON & MAILMOND CO SILOS United States Steel Co UNITED STEEL FABRICATORS INC. Wheeling Corrugating Co Wheeling Steel Corp

#### SIDING, LOG

Abbot Fox Lumber Co Anaconda Copper Mining Co Anaconas Copper String Co
Anaconas Copper String
Argent Law BEE Co of ARK
Rrown's Tie and Lumber Co
Randian Forest Products Ltd
Canadian Forest Products Ltd
Canadian Forest Products Ltd
Confignt (Group & Lumber Co
Canada Coroca & Lumber Co
Confignt (Group & Lumber Co
Confignt (Group & Lumber Co
Cummer Sone Cypress Co
Lumber Co
Cummer Sone Cypress Co
Lumber Co
Lumber Co
Lumber Lumber Co
Fidelized Lumber Co
Hulbert (Wun) Mill Co
Huttert (Wun) Mill Co
Huttert (Wun) Mill Co
Huttert (Wun) Mill Co
McCoBell Lumber Co
McCoul Argent Lumber Co BRADLEY LUMBER CO OF ARK ADIS Limber Co. die Furniture Co. Inc. die Furniture Co. Inc. Maries Lumber Co. Paul & Tacoma Lumber Co. Paul & Tacoma Lumber Co. Paul & Tacoma Lumber Co. DUTMERM PINE LUMBER PINE LUMBER CO. DUTMERM PINE LUMBER CO. DUTMERM PINE LUMBER PINE PINE LUMBER PINE PINE LUMBER PINE LUMBER PINE PINE PINE LUMBER PINE PINE PINE illivan Lumber Co nion Lumber Co an Deinse Lumber Sales Corp allace Mill & Lumber Co Warren-Lamb Lumber Co WEYERMAEUSER SALES CO Wilton (A K) Lumber Co Winton Lumber Sales Co Wood Lumber Co

#### SIDING, PLYWOOD Actna Plywood & Veneer Co

#### SIDING, UNDERLINER, INSULATING, BLANKET RUBEROID CO WOOD CONVERSION CO

SIDING, WOOD FIBER INSULATING

SIED & SON INC

#### SIGNS

Active Display Adv Allen (W D) Mfg Co Auto Sign Display Co Building Products Merchandising Service Carter Co Carter Co COFFMAN (R G) CO INC Enamel Products Co Engineered Plywood Products Esco Mfg Co Flexiume Corp Fox Valley Forge Household Patent Co Imperial Brass Mfg Co

MACKLANBURG-BUNGAN CO Miro-Flex Co National Advertising Co Newman Brothers Inc Ready-Made Sign Co Reflecto Letters Inc Renco
Seaporcel Porcelain Metals Ine
Stewart Iron Works Co Ine
Stewart Iron Works Co Ine
Tennessee Examel Mfg Co
Thomas & Associates Inc
Tiffin Art Metal Co
Turner Brass Works
Watson Co
Whitehall Metal Studios

**▶ SILICON CARBIDE GRAIN** BEHR-MANNING CORP DIV NORTON CO

Carborundum Co Fort Pitt Chemical Co Safe Tread Co Inc

Artow Tank Co Inc Caldwell (W E) Inc Concrete Transport Mixer Co Economy Silo & Mfg Co Fleming Mfg Co Inc Globe Silos Fleming Mfg Co Inc
Globe Silos
Harder Silo Co Inc
Harder Silo Co Inc
Hilliosis Wire & Mfg Co
Independent Silo Co
Independent S

#### SILOS, BUILDING MATERIAL **GRAIN & COAL STORAGE**

Brady Conveyors Corp Dodson Mfg Co Inc Fairfield Engineering Co Harder Silo Co Inc Johnson (C S) Co Neff & Fry Co

SILOS, METAL James Mfg Co Johnson (C S) Co

SILOS, PORTABLE RICHKRAFT CO

SINK, RIMS, PREFORMED

BRIGGS MFG CO B & T METALS CO ecorite Inc ord Metal Moulding Corp MACKLANBURG-DUNCAN CO Metal Trims Inc National Aluminum Co Pyramid Moulding Co S & W Moulding Co Trimedge Inc
WOOSTER PRODUCTS INC
Youngstown Mfg Inc

SINK STOPPERS

Columbus Plastic Products Inc Kampa Mfg Co Nu-Dell Plastics Corp Inc Schaible Co U S Rubber Co

SINKS, CABINET ALLIANCEWARE INC AMERICAN CENTRAL DIV AVCO MFG

COMP AMERICAN RADIATOR & STANDARD SAN-ITARY CORP BERGER MFG DIV REPUBLIC STEEL CORP Buro Wood Products Co BRIGGS MFG CO CORRES CO CURTIS COS INC Elgin Stove & Oven Div Acme Visible Records Tone
ELIER CO
ELIER CO
ELIER MIC CO
ELIER MIC CO
ELIER ELIECTRIC CO APPLIANCES &
MERCHANDISE DEPT
HOTPOINT INC
ELIECTRIC CO
ELIER ELIECTRIC
ELIER ELIER ELIER
ELIER ELIER ELIER ELIER
ELIER ELIER ELIER ELIER
ELIER ELIER ELIER ELIER ELIER ELIER
ELIER ELIE INL Furniture Co
KOMLES CO
Lorn Metal Products Inc
Lorn Metal Products Inc
Murton Mig Co Morton Kitchen Cabinet Div
MULLINS MFG CO
MURTHY DOOR SED CO
MURTHY COTP of America
Mutchilder End

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Palley Mfg Co Pioneer Co BICHMOND RABIATOR CO Roberts & Mander Corp Shirley Corp TRACY MFG CO UNIVERSAL-RUNDLE CORP

#### SINKS, MONEL OR STAINLESS STEEL

Douglas Distributor Corp
Elgin Store & Oven Div Acuse Visible Record
In Mg Co
Excel Metal Cabinet Co
Edwards Mfg Co
Just Mfg Co
Just Mfg Co
Just Mfg Co
Just Mfg Co
Lyon Metal Products Inc
Midwest Mfg Co
Paragon Utilities Corp
Par Products-From-Sweden In REPUBLIC STEEL CORP REPUBLIC STREE COMP Michmond Engineering Co Roberts & Mander Corp TRACY MFG Co Zahner Mfg Co

#### SINKS, PORCELAIN ENAMEL

ALLIANCEWARE INC AMERICAN CENTRAL DIV AVCO MFG AMERICAN RADIATOR & STANDARD SAN-Oshkosh Wood Fromess Say
Straft ColF
BRIGGS MFG Co
Elgin Store & Oren Dir Acme Viaible Records

SLIDES, EXTENSION

ELIEE CO

General Ceramics & Steatite Corp Sanitary

Kare Die

Ware Corp

KBMLER CO

Bridgsport Hardware Merek Stow & Wilcox Co

Bridgsport Hardware Merek Stow & Wilcox Co KONLER CO Lyon Metal Products Inc Midwest Mfg Co Morton Mfg Co Morton Kitchen Cabinet Div MULLINS MFG CORP MULLINS MFG CORP MURRY COPP of America Palley Mfg Co Paragon Utilities Corp CHECKEND BABIATOR CO oberts & Mander hirley Corp hor Corp TRACY MFG CO UNIVERSAL RUNDLE CORP

SINKS, VITREOUS CHINA

Abingon Poteries Inc AMERICAN RADIATOR & STANDARD SANI-TARY CORP CRAME CO ELIER CO KONLER CO RUCLING MFC CORP UNIVERSAL-RUGHRY UNIVERSAL-RUGHRY UNIVERSAL-RUGHRY

SIZE, WALL

American Varnish Co ARMSTRONG CORK CO ANISTRING CORK CO
ROTCH TO THE T PITTSBURGH PLATE GLASS CO Pyramid Process Co Inc Reardon Co Reardon Co Standard Industrial Products Inc Tamus Industrial Products Inc Tamus Industries Inc Truscon Laboratories Div Devoe & Raynolds Inc U S Gypsum Co Vita-Var Corp Wesco Waterpaints Inc

SKIDS & PALLETS

Air-King Mfg Corp Albany Corrugated Container Corp Carr & Mohil Co Clark Equipment Co Industrial Truck Div Exam Products Co Gabriel Steel Co

Gary Pioneer Steel Corp Georgia-Pacific Plywood & Lumber Co Johnson Industries Inc Lewis-Shepard Products Inc Northwest Door Co.
Northwest Co.
Nort Union Metal Mfg Co West Bend Equipment Corp YALE & TOWNE MFG CO

**▶ SLATE** 

American Sheet Metal Works Badger Corrugating Co Edwards Mfg Co Gichner Inc Glehner Inc Pennsylvania Wire Glass Co HESELIYE CHRP ST PAUL CORRUGATING CS Stewart Inon Works Tiffin Art Metal Co Wasco Flashing Co Willis Steel Corp

North Bangor Slate Co Structural Slate Co

SLATS, VENETIAN BLIND Acme Steel Co American Rule & Block Co Bills Venetian Blind Co Jenerson Wood Working Co Lewis (G B) Co Mackin Venetian Blind Co Oshkosh Wood Products Corp Overton (S E) Co

SNIPS, TINNER'S Atlas Shear Co Bridgeport Hardware Mfg Corp Peck Stow & Wilcox Co SARGENT & CO Wiss (J) & Rons Co Youngstown Mfg Co Inc

NOW PUSHERS

American Fork & Hoe Co American Logging Tool Co Ames Baldwin Wyoming C Farwell Ozmun Kirk & Co Farwell Ozmun Kirk & Co Iwan Brothers Inc Kees (F D) Mfg Co Kennebec Box & Lumber Co Ownsso Mfg Co Kenneus.
Ownson Mfg to
Rugg Mfg Co
Seymour Mfg Co Inc
Starline Inc
True Tempers Corp
Wirt & Knox Mfg Co
Voeman-Hoag Co

SOCKETS, STUDDING Sterling Foundry C

SOCKETS, WIRE ROPE Cable Div American Chain & Cable

AMERICAN STEEL & WIRE CO Rochlings (John A) Sons Co Rochlings (John Upson-Walton Co

SOFTENERS, PUTTY

errett (William L) Co etcher Terry Co et Pitt Chemical Co citt Chemical Co Glaziers' Tool Mig Co King (E & F) & Co Inc Sta-Warm Electric Co Steelcote Mig Co Sullivan Co

SOFTENERS, WATER

American Water Softener Co Bard Mfg Co CRANE CO CRANE CO
Culligan Zeolite Co
Dayton Pump & Mfg Co
Dow Chemical Co
Elgin Softener Corp
Myers (F E) & Brothers Co
Gilux Co
Permytenia Salt Mfg Co
Permytenia Salt Mfg Co
Revnolds Shoffer Fo Reynolds-Shaffer RHEEM MFG CO Solventol Chemical Products Inc WORTHINGTON PUMP & MACHINERY CORP

SOLDER & MATERIALS

Atkins (E C) & Co Relmont Smelting & Beffring Works CHASE BRASS & COPPER CO DISSTON (MENRY) & SONS INC

Ensign Products Co Hanchett Mfg Co INLAND STEEL PRODUCTS CO King (E & F) & Co Inc Lake Chemical Co Lenk Mfg Co Lenk Mfg Co Lenk Mfg Co Lux-Visel Inc National Lead Co Sheffield Bronze Paint Corp Wall (P) Mfg Co Wayne Chemical Products Co

#### SOLVENT, WOOD Boyle-Midway Inc

> SPIKES, CUT INLAND STEEL CO REPUBLIC STEEL CORP

> SPLICERS, WIRE & FENCE AMERICAN STEEL & WIRE CO Crescent Tool Co KEYSTONE STEEL & WIRE CO Klein (Mathias) & Sens Peck Stow & Wilcox Co

SPACKLING COMPOUNDS

CELOTEX CORP Culorcrete Industries Inc MEDUSA PORTLAND CEMENT CO ATIONAL GYPSUM CO ITTSBURGH PLATE GLASS CO leardon Co totland Fire Clay Co chalk Chemical Co camms Industries Inc S Gypsum Co esco Waterpaints Inc

#### > SPREADERS, FERTILIZER, LAWN & GARDEN

Buch Mfg Co Doggett-Piell Co Germain Seed & Plant Co Masters Planter Co Midland Co

> SPREADERS, GLUE

listrom (Nels J) Inc ack Brothers Co Inc rkins Glue Co Standard Paste & Glue Co Inc Taylor (James L) Mfg Co

#### > SPRINKLERS, AUTOMATIC SYSTEMS

Blaw-Knox Div Blaw-Knox Co

#### SPRINKLERS, LAWN

Adel Precision Products Corp Buffalo Sprinkler Co rystone Brass & Rubber Co tional Sprinkler Co ili-A-Way Sprinkler Co ovill Mfg Co

#### SQUARES, CARPENTER'S

own & Sharpe Mfg Co fkin Rule Co illers Falls Co SARCENT & CO STANLEY TOOLS DIV STANLEY WORKS Starrett (L. S) Co

#### SQUARES, CARPENTER'S, STEEL "T"

WILLE I From a Sharpe Mfc Co Dietzen (Busnel Co DISTON (HERRY) & SONS INC GOLDBLATT TOOL CO REUFFEL & ESSER CO Pech Stow & Wilcox Co SARCENT & CER E) & CO SELOK (WALTER E) & CO SHICK (WALTER E) & CO Southington Hardware Mfg Co STANLEY TOOLS DIV STANLEY WORKS arrett (L S) Co nion Tool Co codmark Industries

### **▶** SQUARES, COMBINATION

Lufkin Rule Co Peck Stow & Wilcox Co STANLEY TOOLS DIV STANLEY WORKS

### SQUARES, GLASS CUTTER'S

Fletcher Terry Co Glaziers Tool Mfg Co Luffin Bule PLATE CLASS CO PITTSBUBGH PLATE CLASS CO Sommer & Meac Glass Machinery Co STANLEY TOOLS DIV STANLEY WORKS

#### STACKERS, LUMBER

Pathylanery
American Mig Co Inc
Bradory Machine Co
Bradory Machine Co
Inc
Clark Economent Co
Industrial Truck Div
Hyster Co
Johnson Mig Co Inc
Industrial Truck Div Clark Equipment Co
Donore Event Div Clark Equipment Co
Donore Evitament Co Milwankee Power Ec Moore Dry Kiln Co Ross Carrier Co Stemm Brothers Inc

#### STAIN, CONCRETE FLOOR

CABOT (SAMUEL) INC Flexrock Co Horn (A C) Co Inc eora Paint Co Ine nith (J Lee) & Co Ine Sullian Co
Tamms Industries Inc
Truscon Laboratories Div Devoe & Raynolds
Inc
Vita-Var Corp
Wilbur & Williams Co
Williams (C K) & Co

#### STAIN, SHINGLE

Abesto Mfg Corp
Alabastine Paint Products Div Chicago
Bronze & Color Works
American Stained Shingle Co
American Varnish Co
BARRETY DIV ALLIED CHEMICAL & DYE

MARRIT DIV ALLIED CHEMICAL
CB
Berry Brothers Inc
Boston Varnith CoBrigat National CoBrigat National CoCABOT (SAMUEL) 18C
Carbolineum Wood Proserving CoCarbolineum Co-

Entote Faint and variant Co Empire Variable Co Glidden Co Horn (A C) Co Ine Johnston (B F) Paint Co Lowe Brothers Co Minnesota Faints Inc Murphy Faint Div Interchemical Corp O Brien Corp Brien Corp lympic Stained Products Co-arker (Ira) & Sons Co-tierson Sargent Co

PERMA PRODUCTS CO PITTSBURGH PLATE GLASS CO Portland Shingle Co Pratt & Lambert Inc Protexol Corp

Protest Active
Protest Active
Sargent-Gerke Co
Seldilitz Paint & Varnish Co
Seldilitz Paint & Varnish Co
Seldilitz Paint & Varnish Co
Sounderor (L) Sons Ine
Standard Industrial Products Ine
Vits-Var Corp
Wadsworth Howland & Co
Weatherhest Corp
Weatherhest Corp
Wood Preserver Co
Wood Preserver Co
Wood Preserver Co

#### STAIN, VARNISH

Boston Varnish Co Devoe & Raynolds Inc Elliott Paint and Varnish Co Glidden Co Horn (A C) Co Ine Keystone Paint & Varnish Corp Lowe Brothers Co Love Brothers Co
O'Ricin Corp
PHITSBURGH PLAYE GLASS CB
Scidilit Paint & Varnish Ce
Sherwin, Williams Co
Stelector Mig Co
Truscon Laboratories Dir Devoc & Raynolds
Valentine Co Inc
Vita-Var Corp

#### STAIN, WOOD, OIL

Abesto Mfg Corp.
BARRETT DIV ALLIED CHEMICAL & DYE Boston Varnish Co Hoston Varnish Co Breinig Brothers Inc CABOT (SAWUEL) INC Chicago Bronne & Color Works CRES-BIPT CO INC Decoe & Raynolds Inc Elliott Paint and Varnish Co Foy Paint Co Inc Horn (A. C) Co Inc.
LINSEED OIL PRODUCTS
LOWE BROTHER OF
Marietta Paint & Color Co
O'Brien Corp
Olympic Stained Products Co
Parker (Ira) & Sons Co
PERMA PRODUCTS CO
PITTSBURGH PLATE GLASS CO
PITTSBURGH PLATE GLASS CO

Scidlitz Paint & Varnish Co Sherwin-Williams Co Sherwin-Williams Co Standard Varuish Works Toch Brothers Inc Truscun Laboratories Div Beroe & Raynolds Co Vita Var Corp.

#### STAIRS, STEEL

ARTCRAFT ORWAMENTAL IDON CO Bellkool Co
Blica Co
Decatur From & Steel Co
Fishs (1 W) Iron Works
GENERAL SEGUEZ COSP
Grand Rapids Wire Products Co
Houston Blow Fip & Shoet Metal Works
Logan Co. L) Steel Corp. Mesker (George L) Steel Corp.
NEYAL CRAFTERS
REPUBLIC STEEL COMP.
St Paul Foundry & Mfg Co.
Smith (F P) Wire & Iron Works
Stewart Iron Works Co. Inc.

#### STAIRS, WOOD, MATERIALS FOR

BRADLEY LUMBER CO OF ARK BRUCE (E L) CO CARR ADAMS & EBILIER CO Cole Mfg Co Corbett Cabinet Ce
CURTIS COS INC
Farley & Loctscher Mfg
Huttig Mfg Co
Huttig Sash & Door Ce
Marquart Millwork Co
Millwork Distributors Ce
M & M Woodworking Ce
Morean Ce er Mfg Co M & M Woodworking Co-Morgan Co Morgan Sash & Deor Co Nieker Brothers Inc Radford & Sanders Inc Book Island Millwork Co Snedaker (Frank C) & ( Spokane Sash & Deor Co Wheeler Osgood Co

#### STAIRWAY, DISAPPEARING

American Ladder Co
BESSLER DISAPPEARING STAIRWAY CO STEEL, MASONRY WALL
Craik Wood Products Co. Craig Wood Products Co EZ-WAY SALES INC Farley & Lowischer Mfg Co oldsway Stairway Co Inc. Marco Stairways
Marschike Co
Minnesota Wood Specialties Inc
Newark Ladder & Brachet Co
PRECISION PARTS CORP
ROACH & Muner Co
WEL-BILT PRODUCTS CO

### **STAKES, SURVEYORS**

STAMPS, TIME

### ollett Time Recording slin (A D) Mfg Co with (R H) Mfg Co

STAPLERS & STAPLES MERICAN STEEL & WIRE CO Arrow Fastener to Atlas Tack Corp Bethlehem Steel Co Inc 80STITCH INC Brower Mfg Co Burgess Fastening Co COLUMBIA STEEL CO Continental Steel Corp COPPERWELD STEEL CO TASTERIE COPP FOR THE TOTAL THE TOTA MANKSWELL MYG CO
MIG-States Steel & Wire Co
NATIONAL MYG CO
NATIONAL MYG CO
NICHOLS WIRE & ALLWINSHING CO
REFUSEL STEEL CORP
SARGENT & CO
SARGENT & CO
SIERRIC STEEL CORP

Shelton Tack Co TENNESSEE COAL INON & RAILMOAD CO

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### STAPLES, METAL FURRING OR LATH

AMERICAN STEEL & WIRE CO Bethlehem Steel Co CECO STEEL PRODUCTS COMP Continental Steel Corp KEYSTONE STEEL & WIRE CO PITTSBURGN STEEL PRODUCTS CO

STAYS, FENCE
AMERICAN STEEL & WIRE CO
CECO STEEL PRODUCTS CORP
KEYSTONE STEEL & WIRE CO
MId-States Steel & WIRE CO

#### STAYS, WINDOW

Air-Tite Window Stay Co Hart Sash Holder Co Ideal Brass Works Inc Mallard Products Inc Noiseless Window Spring Co Rockford Sash Holder, Inc SARGENT & CO Vikre (J N) Co

#### STEEL, CONCRETE REINFORCING AMERICAN STEEL & WIRE CO

AMERICAN STEEL Bethjebem Steel Co CECO STEEL PRODUCTS CORP Continuated Steel Corp Continuated Steel Corp COPCO STEEL & ENGINEERING CO INLAND STEEL PRODUCTS CO International Ricel Co KEYSTONE STEEL & WIRE CO Northwestern Steel & Wire Co Penn Metal Co Inc.
Pittsauach steel & Wire Co
Pittsauach steel Passucts Co
Republic Steel Co
Soule Steel Co Soule Steel Co Steelcraft MFG CO Temmessee Coal, IRON & RAILBOAD CO TRUSCON STEEL CO United States Steel Co
Wheeling Corrugating Co
Wickwire Spencer Steel Div Colorado Fuel
Iron Corp

### REINFORCING

CEDAR RAPIDS BLOCK CO DUR-8-WAL

#### STEEL STRAPPING

Acme Steel Co BRANNARD STEEL CB Gerrard A J) & Co Gerrard Steel Strapping Co Independent Metal Strap Co Inc Met-Cro Specialtics Co Inc PAINE CO (John A) Sons Co apping Co Signode Steel Strap TANLEY WORKS el Co

#### STEEL, STRUCTURAL, MISC. SHAPES, ETC.

Alabama Metal Lath Co Allen Steel Products Betliebem Steel Co Inc #85TWICK STEEL LATH CO Commercial Shearing & Stamping Inc Consolidated Iron-Steel Mig Co COPCO STEEL & ESCINEERING CO Decatur Iron & Heel Co

December of the street corp stran-steel of the stran-steel of the street corp stran-steel of the stranger of the street of the s International Steel Co Jones & Laughlin Steel Corp Macomber Inc Rigidized Metals Corp St Paul Foundry & Mig Co Soule Steel Co
TENNESSEE COAL INDN & RAILBOAD CO
TRUSCON STEEL CO
United States Steel Co

#### STEEL WOOL

American Steel Wool Mfg Co Brillo Mfg Co Clarke Sanding Machine Co Eagle Steel Wool Co International Steel Wool Corp Rindes (James H) & Co Thornton (L M) Mfg Co Inc Williams Co

#### **▶ STOKERS**

F JUNEAU
Airtenu Die Christer Motors
Airtenu Die Christer Motors
Anchor Die Stratten & Terringse Co Inc
Anchor Die Stratten & Terringse Co Inc
Anchor Stow & Range Co
Roussell Co
Coal-O-Mattle Stoker Co
Combustioner Dir Stool Products Englowering
Co

CONCO ENGINEERING WORKS DIV CONKEY (M B) CO
SIXAN SPINCE LUMBER CO
SIXAN SPINCE LUMBER A ME CO
SIXAN SPINCE LUMBER CO
SIX

CRIVE APPLIANCE DIV GENERAL MOTORS
CORP.
DOWNSIZE Steel Furnace Co
Econ-O-Col Stoker Dir Cotta Transmission Co
Econ-O-Col Stoker Dir Cotta Transmission Co
Econ-O-Col Stoker Div Guide
Econ-O-Col Stok Holland Furnace Co Hilinois Iron & Bolt Co Iron Fireman Mfg Co Kol-Master Corp Peerless Mfg Corp Pocahontas Fuel Co lales Co RHEEM MFG CO Schwitzer-Cumm Sinker-Davis Co Smith (A 0) C Stokermatic Co Stokel Stoker Co Inc U S Machine Corp Viking Mig Corp WESTINGHOUSE ELECTRIC CORP Whiting Corp

Whiting Corp Will-Burt Co Worsham Company Inc STOKERS, COKE BRYANT HEATER DIV AFFILIATED GAS

STONE, CRAB ORCHARD

STONE, GRANITE Fletcher (H E) Co North Carolina Granite Corp Vermont Marble Co

STONE, LANNON Conco Building Products Inc Brobsky Lannon Stone Service Wisconsin Lannon Stone Corp

STONE, LIMESTONE

loomington Limestone Co riar Hill Stone Co arney Co Inc Carney Co Inc
Conco Building Products Inc
Corson (G & W H) Inc
Indiana Linestone Co Inc
Indiana Linestone Co
George Co
Gational Lime & Stone Co
Iaylor Stone Co
Iaylor Stone Co
Iaylor Stone Co
Visconia Liannon Stone Corp
Voolery Stone Co Inc

STONE, MARBLE

Briar Hill Stone Co Fiwale Equipment Mfg Co Georgia Marble Co Schlichter (P M & W) Inc UNIVERSAL FORM CLAMP CO

STONE PATCHING COMPOUNDS

Dugan's Invisible Stone Patch & Stone Stain Products Reardon Co Rutland Fire Clay Co

STONE, QUARTZ ennessee Stone Co Inc

STONE, SANDSTONE Cleveland Quarries Co Taylor Stone Co

STONE, SYNTHETIC

Formstone Co Perma Stone Co Stedfast Stone & Brick Corp Stonekote Corp STONES, RUBBING

American Emery Wheel Works Mid-West Abrasive Co Norton Co Abrasive Co Div Simonda Saw & Steriling Grinding Wheel Div Cleveland Quar-ries Co

STOPS, GALVANIZED nn Supply & Metal Corp

**▶ STORE LAYOUT SERVICES** Heller (W C) & Co Huss & Baird Studio

Atkins (E C) & Co Brown & Sharpe Mfg Co Hoe (R) & Co Inc KEUFFEL & ESSER CO RED DEVIL TOOLS Ridgely 7 Ridgely Trimmer Co SELCK (WALTER E) & CO Starrett (L S) Co

STRAINERS, EAVE TROUGH

BARRETT DIV ALLIED CHEMICAL & DYE BERGER MFG DIV REPUBLIC STEEL CORP CECO STEEL PRODUCTS CORP CHASE BRASS & COPPER CO Date of the control o Zurn (J A) Mfg Co

STRAINERS, SEWER PIPE

American Vitrified Products Co Donley Brothers Evans Pipe Co
KEWANEE MFG CO
MAJESTIC CO
Robinson Clay Product Co
Universal Sewer Pipe Corp
Vestal Stove Co
Zurn (J A) Mfg Co

STRAINERS, SINK

AMERICAN RADIATOR & STANDARD SANI-TARY CORP American Sanitary Mfg Co CRANE Co. American Samitaly Surg Co-CHANE CO ELIER CO Guider Paeschite & Frey Co International Nickel Co Inc KOMLER CO National Enameling & Stamping Co Schalble Co Scovill Mfg Co

**STRAPPERS** 

Acme Steel Co
BRAINARD STEEL CO
GETTATE (A J) & Co
GETTATE Steel Strapping Co
Sharon Steel Co
Signode Steel Strapping Co

**▶** STRIPS, CORRUGATED

Fabricated Products Co SERVICISED PRODUCTS CORP

STRIPS, DIVIDING CHASE BRASS & COPPER CO Manhattan Terrazzo Brass Strip Co Inc

STRIPS, FILLER ASPHALT SERVICISED PRODUCTS CORP

STRIPS, SEALING

• STUCCO Beautex Plaster Mfg Co Coddington (E D) Mfg Co Colorcrete Industries Inc Ohlo Hydrate & Supply Co Peam Crete Products Co Sullivan Co

STUCCO, PRE-MIXED CELOTEX CORP LOUISVILLE CEMENT CO

National Mortar & : Pyramid Co U S Gypsum Co Woodville Lime Co STUCCO RETARDERS

Breinig Brothers Inc. Tamms Industries Inc.

BOSTITCH INC Hotchkiss (E H) ('o MARKWELL MFG CO

AMERICAN STEEL & WIRE CO Atlan Tack Corp
CMASE BRASS & COPPER CO
CMASE BRASS & COPPER CO
COLUMBIA STEEL
Hillwood Mfg Co
Hillwood Mfg Co
Sheffield Steel Corp
Shefton Tack Co
Snell-Jones Tack Corp

**TAMPERS** Dalton Foundries Inc Storts (John) & Sons Woodings-Verona Tool Works

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SUNDIALS, CAST BRONZE

Clinton Lock Co Colonial Brass Co Colorcrete Industries Inc. Mfg Co
(J W) Iron Works

Companies Mfg Co Fiske (J W) Iron Wo Fiwale Equipment Mf Newman Brothers Inc Standard Bronze Co Turner Brass Works

SWITCHES, ELECTRIC

-Hart & Begeman Electric Co t Electric Co og Electric Products Co -Hammer Inc al Electric Products Co Federal Electric Products Cu
Frederal Electric Products Cu
GENERAL ELECTRIC CO CONSTRUCTION
MATERIALS DEPT
General Switch Corp
Hubbell (Harvey Inc
Micro Switch Corp
Paul & Sergunor

Pass & Seymour Inc WESTINGHOUSE ELECTRIC CORP

SWITCHES, MERCURY
MINNEAPOLIS-HONEYWELL REGULATOR
CO

MINNEAPOLIS-HONEYWELL REGULATOR
CO

Minute Cheer Clay Products Co
What Cheer Clay Products Co

SWITCHES, TIME, AUTOMATIC

Paragon Electric Co Penn Electric Switch Co Sampsel Time Control Inc Tork Clock Co Inc

SYSTEMS, GARAGE, GAS

National System Garage Ventilation

TABLES, DRAFTING

Emrick Inc
Hamilton Mfg Co
KEUFFEL & ESSE CO
Kingsley Mfg Co
Kingsley Mfg Co
Kingsua Pince Millin Co
Loron Metal Products Inc
Post (Frederick) Co
Smith (H E) Co
Southern Wire & Iron Works
Stacor Equipment Corp
Stillwater Clay Products Co

TABLES, SAW PORTER CABLE MACHINE CO. Sales Service Machine Tool Co.

TABLES, STEEL Equipto Div Aurora Equipment Co Heller (W C) & Co Heyer Sales Co Lyon Metal Products Inc

Lyon Metal Fromers
Precision Equipment Co
REMINGTON RAND INC

TACKERS, AUTOMATIC

BOSTITCH INC Crofoot (J B) Co FASTENER CORP Glaziers Tool Glaziers Tool Mfg Co HANSEN (A L) MFG CO Heller Co
Hotehkiss (E H) Co
MARKWELL MFG CO INC
RED DEVIL TOOLS
Saranza Machine Co
Spotnails Inc

TACKERS, HAMMER

**▶** TACKS

RUBERGIO CO

Smell-Jones Tack Corp TENNESSEE COAL INDN & RAILEBAD CO Waterbury Tack Co

TANKS, FUEL OIL & GAS STORAGE

Black Sivalis & Bryson Inc Modern Welding Co PRICE FIREPLACE HEATER & TANK CORP TANKS, HOT WATER,

**HEATING SYSTEM BELL & GOSSETT CO** 

TANKS, SEPTIC, CLAY

American Vitrified Products Co Cannelton Sewer Pipe Co Dail Steel Products Co Products Co ser Pipe & Clay ( 8) Clay Mig Co rans Pipe Co aul Clay Mfg Co Lehigh Sewer Pipe & Tile Co NATIONAL CLAY PIPE MFSS INC Robinson Clay Products Co Scalcon Products Inc Streator Drain Tile Co What Cheeses

TANKS, SEPTIC, STEEL

Armeo Drainage & Metal Products Inc Beall Pipe & Tank Corp Birmingham Building Products Corp Birmingham Building | Butler Mfg Co Dempster Mill Mfg Co Donley Brothers Ingalis Iron Works Co Modern Welding Co PRICE FIREPLACE HEATER & TANK CORP Richmond Engineering Co San-Equip Inc Stover Steel Tank & Mfg Co Uniflow Mfg Co

TANKS, SEPTIC, WOOD

U S Challenge Co WEYERHAEUSER SALES CO

TANKS, STEEL, STORAGE

Aermetor Co American Steel Works Armeo Drainage & Metal Products Inc Beall Pipe & Tank Corp Tank Corp Beall Pipe & Tank Corp
Breyer Brothers Whiting & Co
Butler Mfg Co
Butler Mfg Co
Butler Mfg Co
Dempster Mill Mfg Co
Farwell Groun Kirk & Co
Hell Compan Kirk & Co
Hell Compan Blow Pipe & Bheet Metal Works
Hudson (H D) Mfg Co
La Crosse Steel Roofing & Corrugating Co
Manitowoe Ship Building Co
National Tube Co U S Steel Corp Sub
Richmond Engineering Co Gakes Mfg Co Richmond Engineering Co St Paul Foundry & Mfg Co Schlichter (E F) Co Inc Seattle Boiler Works Sichring Mfg Co Stover Steel Tank & Mfg Co Wayne Home Equipment Co

TANKS, WOOD, STORAGE

Armoof and Co Inc.
Arrow Tank Co Inc.
Atlantic Tank Corp.
Atlantic Tank Mg Co Tank & Tower Co
Dempster Mill Mig Co
Economy Silo & Mig Co
Lumber Co

Tower Co PRICE FIREPLACE HEATER & TANK CORP Union Lumber Co U S Challenge Co

TAPE, FILTER, DRAIN TILE Ric-Wil Co.

TAPE, INSULATING

TAPE, MASKING Goodrich (B F) Co International Plastic Corp Minnesota Mining & Mfg Co PITYSBURGH PLATE GLASS CO

TAPE, PIPE, JOINT,

**ASBESTOS** Sall Mountain Co

TAPE, PLASTIC Mortell (J W) Co.

#### TAPE REPAIR OUTFIT

#### TAPE RING

Lofkin Role Co.

#### TAPE, WALLBOARD JOINT

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP Marvan Corp MATIONAL GYPSUM CO Ranburn Co Inc Reardon Co Tamms Industries Inc S Gypeum Co leece Waterpaints Inc

#### TAPE, WATERPROOF, WALLBOARD

UPSON CO

#### TAPES, MEASURING

hicago Steel Tape Ca ictagen (Eugene) Co conomy Novelty & Printing Co Economy Novelty & Printi EVANS & CO Graham (John H) & Co KEUFFEL & ESSER CO Lufkin Rule Co Master Bule Mfg Co Inc Parisian Novelty Co ROE (185TUS) & SONS Starrett (L S) Co Union Tool Co WHITE (DAVID) CO

### TAPES, SURVEYORS

Lufkin Rule Co

#### TAPES, WOVEN Lufkin Rule Co

### TAPING MACHINES, DRY-

Drywall Taping Co Holland-American

### TAR, LIQUID

BARRETT DIV ALLIED CHEMICAL & DYE
CO
Horn (A C) Co Ine
Koppers Co Inc
Reilly Tar & Chemical Corp
Tuffalt Inc

#### TAR, PITCH

American Amphalt Roof Co BARRETT DIV ALLIED CHEMICAL & DVE CO BIRD & SON INC CABOT (SAMUEL) INC FLINTKOTE CO JOHNS-MANVILLE CORP seilly Tar & Chemical Corp

#### **TARPAULINS**

American Tent & Awning Co Angier Corp Astrup Co
Bemis Brothers Bag Co
Canvas Products Co
Canvas Specialty Co
Clifton Mfg Co Clifton Mfg Co
Couch Brothers Mfg Co
DANIELS (C R) INC
Fulton Bag & Cotton Mills
Goodrich (B F) Co
New York Drop Cloth Mfg Co New York Drop Cloth Mfg (
RICHKRAFT CO
Standard Awning Co
Stanley (William W) Co Inc
Tucker Duck & Rubber Co
U S Tent & Awning Co
Werner Canvas Products Co

#### TARPAULINS, WATERPROOFED

Acorn Canvas Co Astrup Co Berg (F O) Fulton Bag & Cotton Mills Ine Hettrick (W E) & Son Co Hettrick (W E) & Son Co Upton Sales Corp Wenzel (H) Tent & Duck Co

#### TEMPLATES, ARCHITECTURAL DRAFTING

Timely Products Co.

#### TERNE PLATES

Badger Corrugating Co Bethletem Steel Co FOLLANSBEE STEEL CO INLAND STEEL PRODUCTS CO Wheeling Corrugating Co Wheeling Steel Corp Youngstown Sheet & Tube

#### TERRA COTTA. ARCHITECTURAL

American Terra Cotta Corp Federal Seaboard Terra Cotta Corp Northwest Terra Cotta Corp Pacific Clay Froducts Washington Brick & Lime Co

#### THIMBLES, CHIMNEY & STOVE PIPE

Allen Steel Products
Cannelton Sewer Pipe Co
Dickey (W S) Clay Mfg Co
Donley Brothers Donley Brothers Hope Brick Works INLAND STEEL PRODUCTS CO Kaul Clay Mfg Co KEWANEE MFG CB MAJESTIC CB NATIONAL CLAY PIPE MFBS INC Pacific Clay Products

Robinson Clay Products Co
Sterling Foundry Co
Washington Brick & Lime Co

#### THRESHOLDS, METAL & PLASTIC

Accurate Metal Weatherstrip Co ALLMETAL WEATHERSTRIP CO Aluminum Co of America
American Bram Co
American Mason Safety Tread Co
Athey Mfg Co Braun (J G) Co
8 & T WETALS CO
CECO STEEL PRODUCTS CORP
Chamberlin Co of America Inc
CHASE BRASS & COPPER CO
Decatur Iron & Steel Co Inc (W J) & Co Brothers Metal Strip Mfg Co Erco Mfg Co KAWNEER CO KANNEEE CL LOGAN CO MACKLAMBURG-DUNCAN CO MALESTIC COAL STRIP SERVICE CO MACTER METERS MACTER METERS MACTOR METERS MACTOR METERS NATIONAL GUARD PRODUCTS COP NATIONAL GUARD PRODUCTS COP PROCEE WOOLDWITTON ME CO PROCEE WOOLDWITTON ME CO RUSSEL MACTOR MACTOR METERS ARGENT & CO & W. MONDING CORP WENTER MACROWER CORP VENNE R D TO THE WOOSTER PRODUCTS INC YOUNGSTORN METERS

#### THRESHOLDS, WOOD

Actna Piyrood & Vener Co Anderson-Tully Co Anderson Hardwood Rales Co BRADLEY LUMBER CO OF ARK BRUCE (E.) CO CARR ADAWS & COLLIER CO Chapman & Dewey Lumber Co Clarke County Lumber Mills Cole Mrg Co Cole Mfg Co CROSSETT LUMBER CO Dierks Lumber & Coal Co Edens-Birch Lumber Co FAIR (D L) LUMBER CO Farley & Locatcher Mrg Co Farley & Loctacher Mig Co Forder Lumber Co Frost Lumber Todoskries Int GREGE & SON INC Griffith Lumber Co Hailett Mig Co Inc Hardwood Corp of America Holly Hill Lumber Co Hutton & Bourbonnais Co Industrial Lumber Co Form Industries Inc TRILLON & BURNOWHILD SEE COMMITTEE INC.
LONG-BELL LUMBER COMMITTEE INC.
LONG-BELL LUMBER COMMITTEE INC.
Mansfield Hardwood Lumber Co
Marshall Lumber Co
Marshall Lumber Co
Mexadow River Lumber Co
Mexadow River Lumber Co
Miller Brothers Co Inc.
Nickey Brothers Inc.
Owen (R C) Lumber Co
Phillipo-Riving Lumber Co
Phillipo-Riving Lumber Co
Phillipo-Riving Lumber Co
Ritter (W M) Lumber Co
Rock Island Millwork Co
Rock Island Millwork Co
Roce (D M) & Co
Silbernagel (George 3) & Ross Co
Southern Lumber C Southern Lumber Co

#### TIES, WALL

Allem Steel Products
Allem Steel Products
Allem Steel Co
Bectlater Steel Co
Bestwick Steel Lath Co
CCC STEEL PRODUCTS CORP
CEDAR RAPIDS BLOCK CO DUR-0-WAL
DIV Central Products Co CNASE BRASS & COPPER CO COPPERWELD STEEL CO COPPERWELD SIEEL CO
CONCRETED & WIRE CO
DUNING BRUILERS
GARY FROMER SIEEL PRODUCTS CO
KORNELL PRODUCTS CO
KORNELL PRODUCTS CO
KORNELL PRODUCTS CO
KORNELL PRODUCTS CO
LA Crome Steel Brook & Corrupating Co
M & M WIRE & ALUMINUM CO
NOTIFICATION OF THE CONTRACT OF THE CONTR Reeves Steel & Mfg Co ST PAUL CORRUGATING CO Sommer Metaleraft Corp Sommer Metaleraft Corp.
Southern States Iron Roofing Co.
Star Expansion Products Co. Inc.
TRUSCON STEEL CO. U S Gypsum Co UNIVERSAL FORM CLAMP CD

#### TIES, WALL & COLUMN, WIRE MESH

CECO STEEL PRODUCTS CO Goldsmith Metal Lath Co Penn Metal Co Inc Richmond Serew Anchor Co Sommer Metalcraft Corp TRUSCON STEEL CO UNIVERSAL FORM CLAMP CO Wheeling Corrugating Co Williams Form Engineering Corp

#### TILE, ACIDPROOF

Harbison-Walker Refractories Co Mexico Befractories Co National Tile & Mig Co Nukem Products Corp Robinson Clay Product Co Sloane-Blabon Corp Stark Brick Co Tile-Tex Div Flintkale Co

### TILE, ASPHALT

ARMSTRONG CORK CO HIND A SON CAREY (PHILIP) MFG CO CONGOLEUM-NAIRN INC MACHMEISTER INC
HOOS BUTTON CONTINUE OF THE CONTINUE OF THE CONTINUE OF THE CORP
MASTIC TILE CORP OF AMERICA
MASTIC TILE CORP OF AMERICA
MASTIC TILE CORP OF AMERICA
MACHINE UNION CONTINUE OF THE CORP
THOMAS Modified Products Corp
Thomas Modified Floor MEg Co
Thomas Modified Floor MEg Co
The-Tex Dir Filinators Co Tile-Tex Div Flintkote Co Uvalde Rock Asphalt Co Williams Products Co Inc

#### TILE, CLAY

Acme Brick Co Adel Clay Froducts Co Adel Clay Froducts Co Artectex Geramic Corp American-Olean Tile Co Brason Brick Co Binghamton Brick Co Bowerston Shale Co Brazil Hollow Brick & Tile Co CAMBRIBGE TILE MFG CB Reazil Hollow Brick & Tile CoCAMBRIDGE THE MYS CO
CAMBRIDGE THE MYS CO
CAMBRIDGE THE BRICK CO
CHICAGO FIVE BRICK
CO
CHICAGO FIVE BRICK
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CHICAGO FIVE
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CHICAGO FIVE
CO
CHICAGO
CO
CHIC REBLITIES M'EC GO

Rockford Brick & Tile Co

Rockford Brick & Tile Co

Stortion Free Brick & Tile Co

Stortion Free Brick & Tile Co

Stuffun Cramic Co

Stuffun Cramic Co

Stuffun Cramic Co

Stuffun Cram

Ryton Cram

Ryton Cram

Tresned Brick & Tile Co

Stuffun Cram

Tresned Brick & Tile Co

Tile Council of America

United Materials & Richmond Brick Co Lid

SOUTHERN PINE LUMBER Stuart Lumber Corp Temple Lumber Co Inc Webster (H E) Lumber Co Williams Brownell Inc Williams J L) & Sons Wistar Underbill & Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

U S Quarry Tile Co Verdigris Valley Vitrified Brick & Tile Co Yankee Bill Brick Mfg Co

### TILE, CORK

ARMSTRONG CORN CO Dodge Cork Co Inc MENTILE INC

#### TILE, DRAIN

TILE, DRAIN
Acme Brist To
Add Clay Thrond Foodsts On
Add Clay Thrond Foodsts On
Bowerston Bhale Co
Bowerston Bhale Co
Checker Fire Rever Pipe Co
Char City Pipe Co
Clay City Pipe Co
Clay City Pipe Co
Clay City Pipe Co
Clay City Pipe Co
Countrie Brick Works
Columbia Green Pipe & Clay Co
Bicker W S) Clay Mig Co
Concrete Products Co
Graywone Concrete Pipe & Clay Co
Graywone Concrete Pipe A Tile Co
Humboldt Brick & Tile Co
Kingaland Clay Froducts Co
Kingaland Clay Froducts Co
Lithis Seere Pipe & Tile Co Kingsland Clay Frederic Co.

Kingsland Clay Frederic Co.

ATIONAL CLAY FIPE MFRS INC.

NATIONAL Freyers day Corp.

Roblinson Clay Frederic Co.

Roblinson Clay Frederic Co.

Roblinson Clay Frederic Co.

Sheffield Brick & Tile Co.

Sheffield Brick & Tile Co.

Texas Brick Co.

Texas Brick Co.

Texas Brick Co.

What Cheer Clay Frederic Co.

What Cheer Clay Frederic Co.

Yankes Bill Brick Co.

#### TILE, HEARTH

Longmont Brick & Tile Co Murray Tile Co Inc Sparta Ceramic Co

#### TILE, LINOLEUM

ARMSTRONG CORK CO Bonafide Mills Inc Sloane-Blabon Corp

#### TILE, PARTITION, CLAY

Arme Brick Co
Columbia Brick Works
Denner Sener Fipe & Clay Co
Great Falls Brick Co
Great Falls Brick Co
Hope Brick Works
Kalo Brick & Tile on Corp
RA Anne Brick & Tile on Corp
RA Anne Brick & Tile Co
Sealoun Products Inc
Stieffield Brick & Tile Co
Sealoun Products Inc
Stieffield Brick & Tile Co
Stammit Pressed Brick & Tile Co
Yaukse Hill Brick Mig Co
Yaukse Hill Brick Mig Co

#### TILE, PARTITION, GYPSUM

Ette Framend Corp CELOTEX CORP CERTAIN-TEED PRODUCTS CORP MATIONAL GYPSUM CO Sealows Products Inc U S Gypsum Co

#### TILE, PAVING, NON-SLIP

American Abrasire Metals Co Charleston Clay Products Co FLIMTROET CO Metropolitan Brick Co National Tile & Mig Co Norton Co Safe Tread Co Inc Stark Brick Co Tile-Tex Div Flinthote Co Washington Brick & Lime Co

TILE, PLASTIC
ANMSTRONG CORK CO
COTTANT THE CO
COTTANT
CO

### TILE, PLASTIC, ASBESTOS

Acorn Plastic Engineers Inc. JOHNS-MANVILLE CORP

#### TILE, QUARRY

Adel Clay Frobusta Cu Arletes Ceramic Corp Brookheen Pressand Briek & Mfg Co Cannellon Serer Pipe Co Cannellon Serer Pipe Co Clark (N) & Sens Div Pacific Clay Producta Gladding-McBeau & Cu Hanley Co Internate Briek Co Ludwigld-Cristian

Murray Tile Co Inc National Tile & Mfg Co Pacific Clay Products Robinson Clay Products Co SUBMITVILLE FACE BRICK CO Cuted Materials & Richmond Brick Co Ltd US Quarry Tille Co Clab Fire Clay Co Washington Brick Lime & Sewer Pipe Co Wheeling Tile Co

#### TILE, ROOFING

California Pottery Co Clark (N) & Sons Div Pacific Clay Products Gladding-McBean & Co Gladding-McBean & Co Interstate Brick Co Ludowici-Celadon Co Mufflin (B) Hood Co Murray Tile Co Inc National Fireproofing Corp Owens-Hilmois Glass Co Kaylo Div Pacific Clay Products Washington Brick & Line Co Walverine Porce

#### TILE, ROOFING, INSULATING AMERICAN STRUCTURAL PRODUCTS CO.

#### TILE ROOFING, METAL

CECO STEEL PRODUCTS CORP Continental Steel Corp REYNOLDS METALS CO BUILDING PRED-UCTS DIV

#### TILE, RUBBER

THE, RUDDER
American Bluther Co
American Thite Ruther Co
American Tile & Ruther Co
American Tile & Ruther Co
Building MaBuilding Market Co
Fremon Ruther Co
Goodrie IT is Ruther Co
Hood Ruther Co
Hood

Hood Burnes Johnson Industries Inc KENTILE INC Lustro Plastic Tile Mfg Co Mitchell (R L) Rubber Co Northern Rubber Products Inc Valoo Products Inc Valoo Products Inc

Palladium Products

R C A RUBBER CO

Robbins Tire & Rubber Co

Roxdale Building Products Corp

Sleane-Blaben Corp Williams Products Co Inc WRIGHT MFG CO WRIGHT RUBBER PROD-UCTS DIV

#### > TILE, SEWER, SEGMENT

Vitrified Products Co. Dowermon Shale Co Dickey (W S) Clay Mfg Co WATIONAL CLAY PIPE MFRS INC. Vacific Clay Products
Robinson Clay Products Co
Universal Concrete Pipe Co Inc
Universal Sewer Pipe Corp

#### TILE, SILO

Acnee Brick Co
Adel Clay Products Co
Columbia Brick Works
Dickey (W S) Clay Mfg Co
Kalo Brick & Tile Co
National Fireproofing Corp
Yanker Hill Brick Co

#### TILE, STRUCTURAL CLAY

TILE, STRUCTURAL (
Aeme Brick Co
Alliance Clay Products Co
Alliance Clay Products Co
Alliance Clay Products Co
Alliance Clay Products Co
Charles Co
Charles Co
Charles Co
Charles Co
Charles Co
Charles Co
Cheroke Brick Co
General Shale Products Corp
Gersystem Concrete Products
Gersystem Concrete
Gersystem

Sheridan Press Brick & Tile Co Standard Brick & Tile Corp Streator Drain Tile Co Summit Pressed Brick & Tile Co Texas Brick & Tile Co United Brick & Tile Co United Brick & Tile Co Washington Brick & Lime Co Washington Brick Mg Co

#### TILE, WALL, ALUMINUM, PLASTIC COATED

ALLOY TILE COMP Bestile Mfg Co VIKON TILE CO

#### TILE, WALL, BOARD

eina Plywood & Vencer Co Alo-Tile Mfg Co ARMSTRONG CORK CD BUILDING MA-TERIALS DIV BARCLAY MFG CO INC Restile Mrg Con CELOTEX CORP CERTAIN-TEED PRODUCTS CORP CERTAIN-TEED PRODUCTS CORP cornell Wood Products

DANT & RUSSELL INC

Davis Plywood Corn avis Plywood Corpust Coast Tileboard Corp Gibbs Boardtile Corp
HOBASOTE OF
18SULITE DIV MINNESOTA & SNTARIO
PAPER CO
JOHNS-MANVILLE CORP
MARSH WALL PRODUCTS INC
MASSHITE CORP
MITTERIOR OF
MITTERIOR OF Miratile Mfg Co

Monarch Tile Mfg Corp NATIONAL GYPSUM CO National Tileboard Corp Plastergon Wall Board Co National Mail Board to PRESTILE MFG CO PRESTILE MFG CO ROUSE PLANDED CORP Royale Building Products Corp SIMPSON LOGGING CO Superior Plantics Div Commonwealth Plastic

TYLAC CO TYLAC CO
U S Gypsum Co
UPSON CO
Wallace Mfg Co
Wall-Tile Mfg Co Williams Products Co Inc when chavenship in Yankee Tile & Fibre Mfg Co

or Wall Products Co

#### TILE, WALL, BOARD, **GYPSUM**

NATIONAL GYPSUM CO

#### TILE, WALL, BOARD, PLASTIC COATED

ARMSTRONG CORK CO BUILDING MA-TERIALS DIV BARCLAY MFG CO INC Co Tileboard Co Gibbs Boardtile Corp
MARSH WALL PRODUCTS INC
Miratile Mfg Co Miratile Mfg Co
National Tileboard Corp
PRESTILE MFG CO
Roxdale Building Products Co
Superior Wall Products Co
TYLAC CO
Wallace Mfg Co

#### TILE, WALL, GLASS

American Beauty Glass Tile Co Dearborn Glass Co

### TILE, WALL, MARBLE

#### TILE, WALL, METAL

ALLOY TILE CORPORATION ALLOY TILE CORPORATION
Altino Tile Of Ratimore Porcelain Steel Corp
Battimore Porcelain Steel Corp
Bettle Mfg Co Inc
Chromite Co
Chromite Co
Ford Roofing Products Co
Goldsmith Metal Lath Co
HLAMD STEEL PRODUCTS CO
Metal Tile Products Inc
Ohio Can & Crown Co REYNOLDS METALS CO BUILDING PROD-UCTS DIV ling Products Corp

#### TILE, WALL, PLASTIC A-1 PLASTIC MOLDERS INC BARCLAY MFG CO

Bonafide Mills Inc Cermak Tile Co Inc Chicago Plastic Products Co Inc Church (C P) Mig Co East Coast Tileboard Co

riastic Tile Co of America PRESTILE MFG CO Robbins Tire & Rubber Co 8 & W. March

Stylon Corp Styron Bri-Tile Co of N Y Superior Plastics Div Commonwealth Plastics

Inc Ruperior Wall Products Co Thomas Moulding Floor Mfg Co File-Rite Co File-Tex Div Flintkote Co Trimedge Inc Trimedge Inc United Plastic Tile Co Williams Products Co Inc Wilson Plastics Inc

#### TILE, WALL, PORCELAIN ENAMEL

American & Venetian Tile Co ARMSTRONG CORK CO BUILDING MA-TERIALS DIV TERIALS DIV

Baltimore Porcelain Steel Corp
Clyde Porcelain Steel Corp
Davidson Enamel Products Inc
Beaporcel Porcelain Metals Inc

TILE, WALL, WOOD

#### TILE & TILEBOARD ACOUSTICAL

ARMSTRONG CORK CO BUILDING MA-TERIALS DIV CELOTEX CORP CERTAIN-TEED PRODUCTS CORP DANT & RUSSELL INC Durisol Inc

Durisol Inc
Hanson (Elof) Inc
HASULITE OLV MINNESOTA & ONTARIO
PAPER CO
JUNES MANVILLE CORP
Kolley Island Lime & Transport Co
LOCKPORT CONTON STATING CO
GWENS-CORNING FIREFALES CORP
PITTSBURGH PLATE GLASS CO
POTENT MET CONTON STATING CO
FORTER MET CONTON STATING CO
FORTER MET CONTON STATING CO
POTENT MET CONTON STATING CO
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POTENT STATING
POTEN Porete Mfg Co REYMOLDS METALS CO BUILDING PROD-UCIS DIV SIMPSON LOGGING CO

U S Gyphum Co WOOD CONVENSION CO

#### TIMBER CONNECTORS

Cleveland Steel Specialty Co Inc. Metal Industries Inc. Timber Engineering Co TIMBER STRUCTURES INC

#### TIRES & TUBES, RUBBER

Dayton Rubber Co Firestone Industrial Products Co Firestone Tire & Rubber Co Fisk Tire Div U S Rubber Co Fisk Tire Dir U S Rubber Co General Tire & Rubber Co General Tire & Rubber Co Goodrich (B F) Co Goodyar Tire & Rubber Co Kelly-Springfield Tire Co Lee Rubber & Tire Corp Mansfield Tire & Rubber Co Swan Rubber Co U S Rubber Co

#### TOOL BOXES

All-Steel Equipment Co Equipto Div Aurora Equipment Co Lufkin Rule Co

#### TOOLS, BOARD BENDING M-M-A Inc

#### TOOLS, BORING

Armstrong Brothers Tool Co Circa Tool Co Deune (E W) Co Gairing Tool Co Graham (John H) & Co Inc Holub Industries Inc Mephisto Tool Co Inc

MILWAUKEE ELECTRIC TOOL CORP

Pratt & Whitney Div Niles-Bement-Pond Co

Precision Tool Co Inc

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

STANLEY TOOLS DIV STANLEY WORKS

#### TOOLS, CARPENTER

Atkins (E C) & Co Black Brothers Co Inc. Cedarberg Mfg Co DISSTON (WENRY) & SONS INC Drew (C) & Co Brew (C) & Co
Eliason Tool Co
Empire Level Mfg Co
Graham (John H) Co Ine
Greenlee Tool Co
Heller Brothers Co
Lectonia Tool Co
Mayhew Steel Products Ine
Millers Espile Co MILWAUKEE ELECTRIC TOOL CORP MILWAUNES
OR-Wall Tool Co
Peck Stow & Wilcox Co
Plomb Tool Company
Rainey-Tool Co
Sumnson Tools Mfg Co SARGENT & CO STANLEY TOOLS DIV STANLEY WORKS Starrett (L S) Co Stortz (John) & Son Inc Union Hardware Co Vaughan & Bushnell Mfg Co

#### TOOLS, CARVING, **HOMEWORKSHOP**

Buss Machine Works Chicago Wheel & Mfg Co Canding Machine Co Clarke Sanding Ma INDEPENDENT PHEUMATIC TOOL CO North Brothers

Children (C. S.) & Co

PARKS WOODWORKING MACHINE CO

Pratt & Whitney Div Niles Bement-Pond Co WALKET-TURNER CS DIV KEARNEY & TRECKER CORP Wilson Saw Div Media Machine Works Inc.

#### TOOLS, CAULKING

Bucabel Tool Mfg (o GOLDBLATT TOOL CO International Nutyp Tool Corp Lectonia Tool (o Paine (Benjamin O) Paine (Benjamin Proto Tool Co Robbins Mfg Co

#### TOOLS, CONCRETE FINISHING

Atkins (E.C.) & Co DISSTON (HENRY) & SONS INC GOLDBLATT TOOL CO INDEPENDENT PNUMATIC TOOL CO MARTINITION TOOP! Co Sardia Level & Tool Co Sterling Wheelbarrow Co Whiteman Mig Co

#### TOOLS, ELECTRIC, PORTABLE

Albertson & Co Inc AMERICAN FLOOR SURFACING WACHINE

CO BLACK & DECKER MFG CO BRADFORD MACHINE YOOL CO Clarke Sanding Machine Co CONSOLIDATED MACHINERY & SUPPLY CO LTD CUMMINS-CHICAGO CORP CUMMINS PORTABLE TOOLS DIV GOLDBLATT TOOL CO
Heston & Anderson Div St Paul Foundry & Mfg Co INDEPENDENT PNEUMATIC TOOL CO MALL TOOL CO MALL TOUR LOW
MINEST FAILS ON
MILES FAILS
MILES
MILES FAILS
MILES
MILES WALLACE (J B) & CB Wright Power Saw & Tool Co

#### TOOLS, GLAZIERS' PITTSBURGH PLATE GLASS CO

### TOOLS, LINOLEUM-LAYING

ARMSTRONG CORK CO HACHMEISTER INC mal Guard From

### **PLASTERERS**

Adams (C F) Inc Adams Co Atkins (E C) Co

Banner Mfg Co Berg (John) Mfg Co Bridgeport Hardware Mfg Corp Bucabel Tool Mfg Co Cedarburg Mfg Co DISSTON (HENRY) & SONS DISATON (MENNY) & 500%

DOING ROUTHERS
Dresden Mig Co
Drew (C) & Co
Economy Mig Co
Markel Routhers Saw Mig Co
Inc
Industrial Iron Works
Industrial Iron
Industrial Nash (J M) Co
NATIONAL GYPSUM CO
Nicholis Mfg Co
Paine (Benjamin O)
Peck Stow & Wilcox Co
Plumb (Fayette B) Inc
REMINGTON ARMS CO INC REMINGTON ARMS CO INT
SANGE LEVE & TOOL CO
STANLEY TOOL OIL STANLEY WORKS
STOTE (John) & Son Inc.
STOTE (John) & Son Inc.
U.S. Gypsum Co
Lunted Wire Goods Mrg. Co
Vaughan & Bushnell Mrg. Co
Vaughan & Bushnell Mrg. Co
Vaughan & Bushnell Mrg. Co
Welcan Tool Div. Meez. Corp
Valcan Tool Div. Meez. Corp
Valcan Tool Mrg. Co
Wheeling Corrupating Co

#### TOOLS, PAINTERS' & PAPERHANGERS'

Atlas-Ansonia Co Bengal Co Black Panther Too Rengal Co Black Panther Tool Co Carlson (A B) & Co Clyde Cutlery Co Collmer Brothers Colorcrete Industries Inc Decoc & Baynolds Inc Empire Level Mfg Co Felton Sibley & Co Inc Glidden Co GOLDBLATT TOOL CO Harbil Mfg Co Inc Henkel-Clauss Co Holley Chemical Co Hyde Mfg Co Landers Fraty & Clark Modern Specialties Co Murray-Black Co Parker (Ira) & Sons Co Pioneer Tool Co Inc PITYSBURGH PLAYE GLASS CO RED DEVIL TOOLS Ridgely Trimmer Co Seldlitz Paint & Varnish Co SELCK (WALTER E) & CO Sonneborn (L) & Sons Inc Steneil Specialty Co SELCK (WALTER E) & CO
Sonneborn (L) & Sons Ine
Stenell Specialty Co
Stephenson Mg Co
Storts (John) & Son Ine
Thomas Products Co
Tri-Ko Mfg Co
Vernontown Tool Div Metex Corp
Warner Mfg Co
Wiss (J) & Sons Co
Wiss (J) & Sons Co

#### TOOLS, PLUMBERS

Armstrong Brothers Tool Co Armstrong Mfg Co Baltimore Tool Works Delaware Tool Steel Corp Hood Brothers HYDRAULIC MFG CO Mephisto Tool Co Inc
MILWAUKEE ELECTRIC TSOL CORP
P & C Hand Forged Tool Co
Proto Tool Co
Proto Tool Co sincy-Tools
tortz (John) & Son Ine
aughan & Bushnell Mfg Co
ernoutown Tool Div Metex Corp
(lide Drop Forge & Tool Co

#### TOOLS, PNEUMATIC

cago Pneumatic Tool Co ersull-Rand Co Threstoll-Band Co
SKILSAW INC
WORTHINGTON PUMP & MACRIMERY
CORP
Wright Power Saw & Tool Co

#### TOOLS, POWER, HOME WORKSHOP

reade Mfg Div Rockwell Mfg Co Atkins (E C) & Co BLACK & DECKER MFG CO BOICE-CRANE CO Russ Machine Works
CONSOLIDATED MACHINERY & SUPPLY
CO LTD
CUMMINS-CHICAGO COMP CUMMINS
PRETABLE TOOLS DIV
DEWALT INC

DREMEL WFG CO Duro Metal Products Co Heston & Anderson Div St Paul Engineering & Mfg Co INDEPENDENT PREUMATIC TOOL CO MALL TOOL CO Millers Falls Co PARKS WOODWORKING MACHINE CO PORTER-CABLE MACHINE CO

Pratt & Whitney Div Niles-Bement-Pond Co-Shopmaster Inc SKILSAW INC SYNTRON CO ol & Engineering Co

Tomine 100: a noguering Co Toolkraft Cop WALKER-TURNER CO DIV KEARNEY & TELEKEN CORP WALLAGE (1 D) & CO Waren Dado Sowing Washers Co Walton Saw Div Media Machine Works Inc Yates-describen Machine Co

#### TOOLS, ROOFING

Burritt (0 F) & Brothers GOLDBLATT TOOL CO INLAND STEEL PRODUCTS CO Peck Stow & Wilcox Co R C S TOOL SALES CORP ST PAUL CORRUGATING CO STANLEY TOOLS DIV STARLEY WERKS TRI-STATES BLDG MATERIAL CO

#### TOOLS, SHEET METAL WORKERS

Air Reduction Sales Badger Corrugating Co Compton (W H) Shear Co Pootatuck Corp

#### TOOLS, SPLIT RING GROOVING

Timber Engineering Co Vaughan & Bushnell Mfg Co

#### TOOLS, WEATHERSTRIP

Barland Weatherstrip Material C CECO STEEL PRODUCTS CORP Monarch Metal Weatherstrip Cor Protex Weatherstrip Mfg Co Robbins Mfg Co Relitions Mfg Co STANLEY TOOLS DIV STANLEY WORKS

#### TOPS, CABINET, TABLE, COUNTER

Actas Plywood & Veneer Co American Central DIV AVCO MFG CORP ANGEL NOVELTY CO ARBORITE CO LTO ARMSTRONG CORK CO Boro Wood Co BRADLEY LUMBER CO OF ARK Consolidated Water Power & Paper Co Consolidated water Fower & Fap
Continental Can Co.
CURTIS COMPANIES INC
DAVIES (J A) & CO.
bel-Mar Cabinet Co Inc
Douglas Distributors Corp
Chec Mfg Co.
Engineered Plywood Products Co.
Farley & Loctscher Mfg Co.
FORMICA C.
FORMICA C. Engineered Plywood Products Co Farley & Loetscher Mfg Co FORMICA CO GENERAL ELECTRIC CO SINKS & CABINET National Tile & Mfg Co Dir St. Regie Sales Corp Utilities Corp Parkwood Corp
PITTSBURGH PLAYE GLASS CO
RODDIS PLYWOOD CORP
Technical Appliance Corp Technical Appliance Corp Tennessee Enamel Mfg Co TRACY MFG CO S MENCEL PLYWOOD INC S PLYWOOD CORP WESTINGHOUSE ELECTRIC CORP

VOODALL INDUSTRIES INC

#### TOPS, TABLE, PORCELAIN ENAMELED

Enamei Products Co General Porcelain Enameling & Mfg Co Ingram Richardson Mfg Co Rigidized Metals Corp Teunemec Enamel Mfg Co Vitreous Steel Products Works

#### TOPS, TABLE, STAINLESS STEEL

name! Products Co ast Mfg Co aslander & Sons Inc

#### TORCHES, BLOW

Aeroil Products Inc
Badger Cornagating Co
Berray (Otto) Co Inc
Berray (Otto) Co Inc
Clayton & Lambert Mfg Co
Level of Mfg Co
Everholt Mfg Co
Justrite Mfg Co
Justrite Mfg Co
Lenk Mfg Co
Justrite Mfg Co
Justr National Airoil Burner Co PITTSBURGH PLATE GLASS CO Turner Brass Works Wall (P) Mfg Co

#### TOWERS, SELF-RAISING JAEGER MACHINE CO

#### ▶ TRACTORS

ALLIS-CHALMERS MFG CO Caterpillar Tractor C DEARBORN MOTORS Detroit Hoist & Mact vine Co Detroit Roist & Machine Co Elevell-Parker Electric Co GRAND HAVEN STAMPED PRODUCTS CO Industrial Truck Div Clark Equipment Co International Harvester Co Lewis-Shepard Products Inc Mack-International Motor Truck Corp OLIVER CORP INDUSTRIAL DIV

#### > TRACTORS, ELECTRIC

#### **TRAILERS**

Case Crane & Kilbourne Jacobs Co Darbrook Hydraulic Corp Brosey Trailess Eberhard Mfg Co Div Eastern Malleable Iron

Fruchauf Trailer Co JAEGER MACHINE CO Kingham Trailer Co
Knox Corporation
Lansing Co
Le Tourneau (B G) Inc
Mustang Trailer Co
Nabors (W C) Co

Nabors (W.C.) Co.
REYWOLDS. METALS CO BUILDING PRODUCTS DIV.
STRICK. A. Brothers Co.
Trailmobile Co.
Trailmobile Co.
Utility Trail of Industries Inc.

#### TRAILERS, DUMP

Cubby Trailer Co Fruehauf Trailer Co Nutting Truck & Caster Co

#### TRAILERS, PLATFORM INDUSTRIAL

BOIL Pipe & Tank Corp
Electric Wheel Co
Frenshaft Trailer Co
House Seale Co
Mercury Mig Co
Pointer Williamstet Co
Service Caster & Truck Die Domestie Indimetries Inc
Streich (A) & Brothers Co
Tocker-Dorsey Mig Co
Wellschad & Kalles Co
Whitchead & Kalles Co

#### TRAPS, GREASE

CRANE COMPANY CRANE COMPANY
Industrial Iron Works
NATIONAL CLAY PIPE MFRS INC
Vestal Store Co Building Specialties Dig
Zurn (J A) Mfg Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

#### TRAPS, SINK

AMERICAN RADIATOR & STANDARD SANI-TARY CORP CRAME COMPANY ELIER CO WENLER CO

#### TRAPS, STEAM

CRANE COMPANY Dunham (C A) Co Grinnell Co Industrial Iron Works Marsh (James P) Corp Moore Dry Kiln Co Tranc Co

#### TREADS, STAIR, BRASS CHASE BRASS & COPPER CO.

#### TREADS, STAIR, SAFETY

Alan Wood Steel Co American Mason Safety Tread Co BRADLEY LUMBER CB OF ARK BRUCE (E L) CO CAREY (PHILIP) MFG CO CAREY (PHILIP) MFG CO CARE ADAMS & COLLIER CO CHASE BRASS & COPPER CO CURT'S COS INC Descrite Inc. recorite Inc ones & Laughlin Steel Corp. ogan Co Safe Tread Co Inc SERVICISED PRODUCTS COMP WOOSTER PRODUCTS INC.

#### TREADS, STAIR, STEEL

Alan Wood Steel Co American Abrasive Metals Co American Mason Safety Tread Co Blaw Knox Div Blaw Knox Co Blaw Knox Div Blaw Is Cole Mfg Co Decatur Iron & Steel Co Fremont Rubber Co Industriat Iron Works Inland Steel Co International Steel Co International Steel Co Logan Co International Metal CRAFTERS Moore (Goodloc E) Inc Safe Tread Co Inc Smith (F P) Wire & Iron Works U S Rubber Co Western Foundry Co Youngstown Mfg Inc

#### TREADS, STAIR, WOOD

P TREADS, STAIR, WOOD

RADLEY LUMBER GO OF ARK

RRUCE (E. L) E0

RRUCE (E. L) E0

CARR ADAMS & COLLIER CO

CARR ADAMS & COLLIER CO

CARR ADAMS & COLLIER CO

Farley & Loctucher Mfg Co

Frost Lumber Industries Industries In

Georgia. Pacific Piyawood & Lumber Co

Huttig Saath & Door Co

Menghis Hardwood Flooring Co

Menghis Hardwood Flooring Co

Nickey Brothers Inc

Spokane Saah & Door Co

#### TRIM, METAL SIDING INSULITE DIV MINNESOTA & ONTARE

#### TRUCK BODIES

Beall Fige & Tank Corp Carter Mfg Co Farmers Lumber & Supply Co Fordyn-Crossett Lumber Co Frondyn-Crossett Lumber Co Gaynor (E S) Lumber Co Montisse STEEL PRODUCTS INC Perfection, Str. Et Body Co Montisse STEEL PRODUCTS INC REYNOLDS METALS CO BUILDING PROOF

01V
Schaefer Body
Schaefer Body
Spokane Sash & Door Co
Stoughton Cab & Body Co
Streich (A) & Bros Co
Wentworth & Irwin
Wood (Gar) Industries Inc

## TRUCK BODIES, CONCRETE,

Dumperete Div Maxon Construction Co Inc Supremix

#### TRUCK BODIES. DEMOUNTABLE

American Truck & Body General Implement Corp Perfection Steel Body Co

#### TRUCK BODIES, DUMP

Anthony Company Beall Pipe & Tank Comp Heil Co
Hercules Steel Products Corp
Houston Blow Pipe & Sheet Metal Works
KEWANEE MFG CO
Marion Metal Products Co Marion Metal Products Co Perfection Steel Body Co Puinter Willamette Co Wood (Gar) Industries Inc

#### TRUCK BODIES, ROLLOFF

Beall Pipe & Tank Corp Carter Mfg Co Fruebauf Trailer Co Honeyman Mfg Co R.B. Company Schaefer Body Stimmel Winch Co Streich (A) & Brothers Co Wentworth & Irwin Inc

#### TRUCK CABS

Four Wheel Drive Auto Co Indiana Body Co Stoughton Cab & Body Co Wentworth & Irwin Inc

#### TRUCKS, HAND AND **PLATFORM**

Ruda Co Case Crane & Kilhourne Jacobs Co Chattanooga Wheelbarrow Co Chark Southment Co
Clark Coursement Co
Electric Wined Co
Electric Wined Co
Entricon Power Lift Trucks Inc
Farthmank Co
Farthman Co
Hamilton Caster 4 Mfg Co
Hower Sco
Hower Sco
Hower Scale Co
Johnson Industries Inc
Lansing Co
Lansing Co Clark Equipment Co. Lansing Co Lewis-Shepard Producta Inc Market Forge Co Lewis-Shepard Products Ine
Market, Forge a
Manonty Eguipment & Engineering Co
Manonty Eguipment Of Engineering Co
Manonty Eguipment Of Engineering Co
Manonty Eguipment Of Engineering Co
Harmonia Co

#### TRUCKS, LIFT

Buda Co Clark Equipment Co Kujekerhocker Mfg Co Revolvator Co Ross Carrier Co

#### TRUCKS, LIFT, ELECTRIC **POWERED**

Automatic Transportation Co Inc Baker Industrial Truck Dis Barrett-Crawen Co Industrial Truck Dis Craser Equipment Co Industrial Truck Dis Cresent Truck Co Electric Products Co Electric Products Co Hamilton Caster & Mig Co Hestine Electric Co Lewis-Bishward Products Co Market Force Company Lewis-Shepard Products Co Market Forge Company Mercury Mfg Co Moto-True Co Nutting Truck & Caster Co Yale & Towne Mfg Co Philadelphia Die

#### TRUCKS, LIFT, GAS **POWERED**

Automatic Transportation Co Inc. Buda Co Clark Equipment Co Industrial Truck Div Crescent Truck Co Erickson Power Lift Trucks Inc Floming Mfg Co Inc Gerlinger Carrier Co Hyster Co Kalamazoo Mfg Co Kwik-Mix Co Lull Mfg Co Lull Mfg Co Milwankee Power Equipment Co Mobilift Corp Ross Carrier Co Service Caster & Truck Corp Silent Hoist & Crame Co

Townster Corp.
YALE & TOWNE MFG CO.

#### TRUCKS, MOTOR

Authora Co.

Browny Motor Co. Toe.

Browny Motor Co. Toe.

Browny Motor Co. Toe.

Browny Motor Co.

Brown Wheel Drive Auto Co.

Gent TauCo. A CoAco. Div Central.

International Mater Truck Corp.

Mack-International Motor Truck Corp.

Motors Ite.

Brownord Motor Truck Corp.

Brownord Motors Truck

Studebaker Corp Studebaker Corp Ward La France Truck Corp White Motor Co Willes-Overland Motors Inc

#### TRUSSES, ROOF, STEEL

Allen Steel Products American Bridge Co Sub of U S Steel Corp. CECO STEEL PRODUCTS CORP Eric Streit Steel Co Gabriel Steel Co Houston Blow Pipe & Sheet Metal Works Mesker (George L) Steel Corp Messier (George L.) Steel Corp REPUBLIC STEEL CORP REVOLDS METALS CO BUILDING PROD-UCTS DIV St Paul Foundry & Mig Co Southern Wire & Iron Works

#### TRUSSES, ROOF, WOOD

AMERICAN ROOF TRUSS CO RILCO LAMINATED PRODUCTS INC. TIMBER STRUCTURES INC WEVERHAEUSER SALES CO

#### TUBING, INSULATING GENERAL ELECTRIC CO CHEMICAL DEPT

#### TUBS, LAUNDRY

Alberene Stone Corp of Va AMERICAN RABIATOR & STANDARD SANI-TARY CORP Arrow Tank Co Inc CRANE COMPANY ELJER CO General Ceramics & Steatite Corp Sanitary Ware Div Ingram-Richardson Mfg Co Johnson & Carlson KOHLER CO RICHMOND RADIATOR CO & Carlson Ruslander & Sons Inc Standard-Elsmere Granite Co UNIVERSAL-RUNDLE CORP erment Scapstone Co beeling Corrugating Co

#### **TURNBUCKLES**

Arro Expansion Bolt Co Black Brothers Co Inc Commercial Shearing & Stamping Inc Black Hotelers to live
Commercial Sharring & Stamping Inc
Commercial Sharring & Stamping Inc
Commercial Sharring & Stamping Inc
Larson (Charles O) Co
Latent (Charles O) Co
Lettest Iron Works
Maine Steel Products Inc
MATIGMAL MFG CO
Sevental Chain on Sons Co
Stowald Chain on Sons Co
RUSSELL-ERWIN DIV AMERICAN HARDWARE CORP
St Louis Serve & Bolt Co
Steffeld Steel Corroducts Inc
Lyson Wallon Col.
Lyson Wallon Col.
Wileox Crittenden & Co Inc

**▶** TURPENTINE American Turpentine & Tar Co Ltd
Boyle Midway, blee see Co
Boyne & Raymolds Co Inc
Etron Naval Stores
Felton Sibley & Co Inc
Glidden Co
Gray (William S) & Co
Gray (William S) & Co
Hercules Pender Co Inc
Ling & Paper Co
Minementa Linued (01) Paint Co
Naval Stores Dir Glidden Co
Naval Stores Dir Glidden Co
Naval Stores Dir Glidden Co
Negort Industries Inc

PITTSBURGH PLATE GLASS CO

Robeson Preservo Co Seidlitz Paint & Varnish Co Southern Pine Chemical Co Div Glidden Co

#### **TWINE**

Columbian Rope Co Graham (John H) & Co Inc Hooven & Allison Co International Harvester Co Inc Plymouth Cordage Co St Louis Cordage Mills

#### **UNDER-REAMERS**

### **UNITS, UTILITY**

DWYER PRODUCTS CORP Earle Kitchen Unit Co

#### VALLEYS, METAL ROOF

American Brass Co American Steel & Wine Co Benger mfg Div Republic Steel Corp CECO STEEL PRODUCTS CORP CHASE BRASS & COPPER CD ioneer Steel Corp Itlinois Zinc Co INLAND STEEL PRODUCTS CO New Holland Metals Co NICHOLS WIRE & ALUMINUM CO Nevere Copper & Brass Inc REYWOLDS METALS CO BUILDING PROB-UCTS DIV UCTS DIV ST PAUL CORRUGATING CO TENNESSEE COAL IRON & RAILROAD CO United States Steel Co Wheeling Corrugating Co

#### > VALVES, PLUMBING, HEATING, ETC.

AMERICAN RADIATOR & STANDARD SANI-TARY CORP BELL & GOSSETT CO Black Sysula & Bryson Inc Black Sivalis & Deposition Brass Co Inc.
CHASE BRASS & COPPER CO CRANE COMPANY DOLE VALVE CO Durst Mfg Co ELJER CO Imperial Brass Mfg Co

Imperial Brass Mfg CoLenkins Brother CoLocks Regulator CoLocks Regulator CoMusilier Brass CoMusilier CoToron Musilier CoToron Trane Company Zurn (J A) Mfg Co

#### VANES, WEATHER

Rantam Mfg Co Burkett Lightning Rod Co Electra Protection Co Edwards Mfg Co Fiske (J W) Iron Works Independent Protection Co James Mfg Co Rand-Williams Mfg Co Inc Samcoe (Wm J) Iron Co Starline Inc Whitehall Metal Studios Inc

#### VAPOR BARRIERS

SIRD & SON INC CAREY (PHILIP) MFG CO CERTAIN-TEED PRODUCTS CORP INFRA INSULATION INC Products Co Rimberly-Clark Corp PROTECTIVE PAPERS INC REYNOLDS METALS CO BUILDING PRODS DIV BICHKRAFT CO SISALKRAFT INC

#### **VARNISHES**

me White Lead & Color Works AMERICAN FLOOR SURFACING MACHINE

AMERICAN FLOOR CO CO American Varnish Co Baker Paint & Varnish Co Berry Brothers Inc Boston Varnish Co Breinig Brothers Inc ish Co

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Briggs-Maroney Co Inc CABBT (SAMUEL) 18C CALBBA PAINT & VARRISM CO Central Paint & Varisis Works Chicago Bronos & Color Works Cook Paint & Varnish Co Devoc & Raynolds Co Inc Elliott Paint & Varnish Co Devoc Baynolds Co Inc Elliott Paint & Varnish Co Felton Stbiry & Co Inc Foy Paint Co Inc GENERAL ELECTRIC CO CHEMICAL DEPT

Glidden Co Grand Rayids Varnish Corp Harrison Paint & Varnish Co Hoboken White Lead & Color Works Inc Born (A C) Co Johnston (R F) Paint Co Keystone Varnish Co Reystone Varnish Co Lowe Brothers Co Locas (John) & Co More (Benjamin) & Co Murphy Paint Div Interchemical Corp. O' Brien Corp. Paters Products Inc Patterson-Sargent Co Pecora Paint Co Inc Pilote Inc. PITTSBURGH PLATE GLASS CO. PITTSBURCH PLATE GLASS CO PTATE & LAUDHOFT Inc Bogers Paint Products Inc SL.Duris SUTAGEOF & Paint Co Sapolin Paints Inc Scale Research of the Scale Research of the Scale Research of the Scale Research of the Scandard Industrial Products Inc Standard Varioth Weike Valentine & Co Valentine & Co Wile-Var Cop Inc Wile-Var Cop Inc Woodfinishing Products Go

#### VATS, DIPPING, LUMBER

Arrow Tank Co Inc Cories Mfg Co Johnson & Carlson Richmond Engineering Co Inc

#### **VENEERS, HARDWOOD**

HIGGINS INC WARSH WALL PRODUCTS INC Nickey Brothers Pearl City Plywood Co Inc Weber Veneer & Plywood Co

#### **VENTILATORS**, FOUNDATION

AIR CONTROL PRODUCTS INC BENNETT-IRELAND INC Newawee MFG CD Louden Machinery to MAJESTIC CO MAJESTIC CO Standard Steel U.S. Gypsum Co Vestal Store Co

#### VENTILATORS, GLASS BLOCK, WALL

AIR RECTIFIERS INC Consumers Co HOUGH SHADE CORP Monarch Metal Weatherstrip Corp

#### VENTILATORS, PORTABLE Nelson (Herman) Corp

#### VENTILATORS, ROOF, REVOLVING

Burt Mfg Co GECO STEEL PRODUCTS CORP r Metal Works III Electric Ventilating Co James Mfg Co Klauer Mfg Co Penn Supply & Metal Corp ST PAUL CORRUGATING CO Starline Inc Warner Ventilator Co

#### > VENTILATORS, ROOF, WALL. AND WINDOW

Adams Co AIR CONTROL PRODUCTS INC Airolite Co
AiR RECTIFIERS INC
Allen Steel Products Inc

American Blower Corp American Sheet Metal Works ANGEL MOVELTY CO crugating Co Berns Mfg Co BOSTWICK STEEL LATH CO BOSTWICK DIESE RIOWEY MIG CO Busch (A G) & CO Luc CAREY (FMILIP) MFG CO CECO STEEL PRODUCTS CORP C & H AIT Conditioning Fan Co Chattanooga Implement & Mfg C CHELSEA FAN & BLOWER CO Clay Equipment Co Co Clay Equipment Co Comfort Products Corp DAMP-VENT CB Diehl Mfg Co Electrical Div Singer Mfg Co Ponley Brothers
Edwards Mfg Co
EMERSON ELECTRIC MFG CO ASCO INDUSTRIES INC Harris Inc
Hemphill (A D) Co
Hebmann & Barnard Inc
HeFE'S WINDOWS INC
Houston Blow Fipe & Sheet Metal Works
Hudson (H D) Mfg Co
Ideal Ventilator Co

Ilg Electric Ventilating Co INLAND STEEL PRODUCTS CO James Mfg Co JOHNS-MANVILLE CORP Krauser-Boyd La Crosse Steel Roofing & Corrugating Co

Kernchen Co
Kernauer-Bogdel Roefing & Corrogating Co
La Champed Roefing & Corrogating Co
La Cham College Co
Laste Welding Co
Loaden Machine Co
Loaden Machine Co
Loaden Machine Co
Modern Stainless Specialties Co Div Medera
Electric Laboratory
National Sereen Co
Modern Stainless Specialties Co Div Medera
Electric Laboratory
National Sereen Co
Notion (Herman) Corp
Pennel Stain Wire Glass Co
Pennel Stain Electric Co
Pennel Stain Electric Co
Pennel Stain Electric Co
Pennel Stain Stain Co
Pennel Co
Pennel Stain Stain Co
Pennel Co
Pen

Signal Electric Mig Co Smith (F A) Mfg Co Standard Steel Cabinet Co Starline Inc STEWART MFG CO STEWART MFG CO
SUITON (0 A) COTP
SWARTWOUT CO
Trane Company
Uno Ventilator Co
Victor Electric Products Ine
Ward (Edgar Ti Co Inc
Wardlow & Jordan
Wayne Agricultural Works
Wayne Mfg Co
Western Angoliance Co Ine Western Appliance Co Inc. Willia Steel Corp Winco Ventilator Co

#### **▶ VERMICULITE**

Acme Asbestos Covering & Flooring Co Baker-Thomas Lime & Cement Co California Zenelite Co California Zonoli CELOTEX COMP Dodson Mfg Co GREAT LAKES CARBON CORP sulation Service Contermountain Insulation Co Mikolite Sales Corp Mocre Dry Kiln Co Northwest Insulations Co Moore Der Kills Co
Northwest Insulations Co
Robinson Insulations Co
Robinson Insulation Co
Southern Zensilte Co
Southern Zensilte Co
Tamms Industries Inc
Texas Vermiculite Toutiest Co
Vermiculite Institute
Vermiculite Products Inc
Western Mineral Products Co
ZUMBLITE Co

#### **VISES**

American Scale Co
American Mig Co
Athol Machine & Foundry Co
Billings & Sponer Co
Champion Hardware Co
Chimbian Vise & Mig Co
Dosmond-Sterban Mig Co
Dosmond-Sterban Mig Co
General Hardware Co
Co Inc
Grand Repetallies Co
Littleious Hardware Co
Millers Falls Co
Morth Brothers Mig Co Div Stanley Tools
Parker (Charles) Co
Parker (Charles) Co
Perker (Charles) Co Peck Stow & Wilcox Co RICHARDS-WILCOX MFG CO St Paul Foundry & Mfg Co

SARGENT & CO STANLEY TOOLS DIV STANLEY WORKS

#### VISES, DOOR HOLDING Stow Metal Products

#### WAGONS, LUMBER YARD

Copper (V M) & Co brott Mfg Corp Electric Wheel Co General Implement Co Gerlinger Carrier Co Knog Corp Gerlinger Carrier Co Knox Corp Lamsing Co Lindsey Wagon Co Nutting Truck & Caster Co Perfection Steel Body Co Pointer-Willamette Co Standard Forge & Axie Co Standard Forge & Axie Co Super-Structures Low Wadsworth & Irwin Inc Winpower Mfg Co

#### **WALL COPING**

Aeme Brick Co American Vitrified Products Co American vitraes Co Cannelton Sew r Pipe Co Clay City Pipe Co Denver Sewer Pipe & Clay Co Dickey (W S) Clay Mfg Co Evans Pipe Co.
Lehigh Sewer Pipe & Tile Co.
MATIGNAL CLAY PIPE MFRS INC.
NATIONAL PROPOSITION.
Robinson Clay Product Co.
Sealons Products Inc.
Stillingset Clay Products Co.
Union Clay Mfg Corp.
Union Clay Mfg Corp.
Washington Brick & Linne Co.
What Cheer Clay Products Co.

#### WALLBOARD, ALUMINUM FOIL COVERED

CELOTEX CORP CERTAIN-TEED PRODUCTS CORP NATIONAL GYPSUM CO

#### **▶ WALLBOARD, ASBESTOS** CEMENT

ASMESTONE CUMP CARCY (PHILIP) MFG CO CELOTEX CORP JOHNS-MARVILLE CORP KEASBEY & MATTISON CO NUMEROUS CO

#### **▶ WALLBOARD, FIBER CANE** CELOTEX CORP

#### WALLBOARD, FIBER INSULATING

ARMSTRONG CORK CO Barclay Mfg Co CELOTEX CORP CELOTEX CORP

Colo Mig Company
East Coast Tileboard Corp
FILINTAGE TO
INSULITE DIV MINNESOTA & ONTARIO
FAPEE ED
JOHNS. MANVILLE CORP
MATIGNAL GYPSUM CO UPSON CO WOOD CONVERSION CHMPANY

#### WALLBOARD, FIBER, WATERPROOFED

UPSON CO.

#### WALLBOARD, FIBER, WOOD

Actor Plywood & Venery Co Armstreng Corx Co Building Ma-Terial Div Bird & Son Inc Celotex Corp Certain-Teed Products Corp CERTAIN-TEED PRODUCTS CORP
CONTROL WOO PRODUCTS CO
DANT A RUSSELL INC
EAST COAST THEORY
FIFTER Insulating Board Co
FILTERE CO
REMANDIE CO
REMANDIE CO
REMANDIE CO
REMANDIE CORP
LIMITATION CORP
LIMITATION
JOHNS, MARVILLE CORP
LIMITATION
MASSMITE CORP
LIMITATION
MASSMITE CORP
MATIONAL CYPSUM CO
RAISING BUILDING CORP
RAINING BUILDING CORP
REMAINING BUILDING COP
Busining Building Products Corp

Service Products Die Woodall Industries Inc SIMPSON LOGGING CO Superior Wall Products Co U S Gypnum Co U S PLYWOOD CORP UPSON EO Wallace Mfg Co W000 CONVERSION COMPANY

#### WALLBOARD, GYPSUM

CELOTEX CORP CERTAIN-TEED PRODUCT CORP Grand Kapids Plaster Co NATIONAL GYPSUM CO Patico Products Inc Pacific Portland Coment Co Schumacher Wall Board Corp U S Gypsum Co

#### **▶ WALLBOARD, LEATHER** FINISH

Artna Plywood & Vencer Co-MASSWITE CORP Miratile Mfg Co Wallace Mfg Co

#### WALLBOARD, MARBLE FINISH

ARMSTERNE CORK CO BARCLAY MFG CO Gibbs Boardtile Corp
JOHNS-WANVILLE CORP
WARSH WALL PRODUCTS INC
Miratile Mfg Co
PRESTILE MFG CO
TYLAT CO
Williams Products Co Inc

#### **▶ WALLBOARD, PAPER**

EIRD & SON CERTAIN-TEED PRODUCTS CORP Fleming & Sons Inc
Fleming & Sons Inc
Plastergon Wall Roard Co
U S PLYWEED CERP
UPSER CO

### WALLBOARD, WOODGRAIN

ARMSTRONG CORK CO BUILDING WA-TERIAL DIV CELOTEX CORP CERTAIN-TEED PRODUCTS CORP FORMICA CO FREMICA CO Gibbs Boarfule Corn MASKELITE MFG. CORP HOMASHEE CO MARSH WALL PRODUCTS INC WATEWAL GYPSOM CO PRESTILE MFG CO FRESTILE MFG CO FRESTILE MFG CO

TYLAC CO U S Gypsum Co Williams Products Co Inc

#### **▶ WALLPAPER**

Birge Co Inc
Buffalo Walleraft Co Inc
Buffalo Wall Paper Mfc Co
Century Wallpaper Mills
Cook Paint & Varnish Co.
Devoe & Raynolds Inc
Di-Noc Co
Globe Mills Inc Ideal Co Imperial Paper & Color Corp Pigment Color Div Joliet Wall Paper Mills Kimberly-Clark Corp Kimsul Div Lennon Wallpaper Co Midwest Wall Paper Co PITTSBUNGH PLATE GLASS CO Plattsburg Wallpaper Co

PITTSBURCH PLATE GLASS CD
PIATATORY WILDSPEC
Prager Co
Prager Co
Prager Co
Prager Co
Prager Co
Ranford Wallpaper Co
Randord Wallpaper Mills
Rotter Wallpaper Mills
Rotter Wallpaper Mills
Trims Co les
United Wallpaper Inc
Verlar Inc

WALLPAPER. READY-PASTED

Trims Co Inc United Wallpaper Inc

#### **WALLPAPER REMOVERS**

Roper Chemical Laboratory Co-Consumers Glue Co-Devoe & Raynolds Co-Inc-Durasol Chemical Co-Fuller (# B) Co-Glidden Co-Le Page's Inc.

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Linck (O E) Co Inc. Patent Cereals Co PITTSBURGH PLATE GLASS CO Pyramid Process Co Inc RED DEVIL 7091S Reliable Parte & Chemical Co Schalk Chemical Co Schalk Chemical Co Spurgeon (N B) Co Tamus Industries Inc United Gibenite Laboratories Warner Mfg Co

#### **WARDROBES**

Austral Sales Corp.
BERGER MFG DIV REPUBLIC STEEL CORP. Carnaban Mfg Co Decorative Cabinet Corp Lee Metal Products Lyon Metal Products you Metal MENGEL CO Midwest Mig Co RICHARDS-WILCOX MFG CO Stor-Aid Inc Woodcraft Mfg Co

#### WAREHOUSING, FIELD

Bouglas-Guardian Warehouse Corp Lawrence Warehouse Co St Louis Terminal Warehouse Co

#### **▶ WASHERS**

CORBIN (P & F) DIV AMERICAN HARD-WARE CORP NAGER (C) & SON HIRGE CO 1/24 (H B) (n LOCKWOOD HARDWARE MFE CO NATIONAL MFE CO

#### ▶ WASHERS, CLOTHES

BEROIX NONE APPLIANCES INC DIV schstone Corp nion Bros Mfg Co Coulon Brow Mfg Co
Comion-Moore Corp
CROSLEY DIV AVCO MFG CORP
Easy Washing Machine Corp
Fathanha Moore & Co
Fathanha Moore & Co
GEBERAL ELECTRIC CO APPLIANCES
WEECHANDISC DEPT
General Implement Corp
Botton Div Avco Mfg Corp
Motron Div Avco Mfg Corp
Motron Div Avco Mfg Corp & Clark Landers Frary & Cl. Maytag Co Naxon Utilities Cor Nineteen Hundred Corp. NORGE DIV BORG-WARNER CORP.

#### WESTINGHOUSE ELECTRIC CORP WASHERS, FAUCET

Durst Mfg Co Holland Bubber Co Plumbers Specialties Mfg Corp Schaeht Rubber Mfg Co Williams-Bowman Rubber Co

#### WASHERS, LOCK

Butcher & Hart Mfg Co CHASE BRASS & COPPER CO National Lock Washer Co Positive Lock Washer Co Sterling Bolt Co Stronghold Screw Products Inc

#### WATER CONDITIONERS

Permutit Co RHEEM MFG CO

#### ▶ WATER SUPPLY SYSTEMS

F THATEN SUPPLY STATEMS
Armotor Co
Aurors Pump Co
Barnes Mfg Co
Barnes Mfg Co
CHRETRUCTION MACHINERY SALES CO
CHRETRUCTION MACHINERY SALES CO
CERRE COMPANY
Dayton Fump & Mfg Co
DELOG APPLIANCE DIV CENTERAL MOTORS
DELOG APPLIANCE DIV CENTERAL MOTORS
DEMING CO COMP
Deming Co
Deming Co
Dempster Mill Mfg Co
Edwards Co
Eric Pump & Engine Works
Everite Pump & Mfg Co Bne
Fairbanks Morse & Co
FLINT & WALLING MF6 C6
Gardner-Denvet Co Gardon-Denver Co
Gordian-Bupp Co
Goulds Pumps Ine
Heil Company
Hodson (H D) Mrg Co
Hymn Engineering Ine
Jaccuzi Rotchers for
Lancatter Pump & Mrg Co
Hymn Engineering Ine
Jaccuzi Rotchers for
Lancatter Pump & Mrg Co
Hymn & T J Mrg Co
Oliux Co
Oliux Co
Pioneer Gen.—Mustor Co
Pioneer Gen.—Mustor Corp
Pomena Pump Co

Red Jacket Mfg Co Robbins & Myers Inc -Saco-Lowell Mopes Sheller (M) & Hone Co Warne Home Equipment Co Westinistion Pump & MACHINERY COSP

#### **▶** WATERPROOFING COMPOUNDS, BASEMENT CISTERN

Abesto Mfg Corp Adensite Co American Fluresit Co Anti-Hydro Waterproofing Co BARRETT DIV ALLIED CHEMICAL & DYE Relmont Smelting & Refining Works CABOT (SAMUEL) INC CAMBOT (BANUEL) INC.
Camp Chemical to loc
CARTY (FRILIP) MFG CB
Cerest Waterpooling Cop
Coddington 18 D1 Mfg CB
Chicroste Industry
Coddington 18 D2 Mfg CB
Control Coddington 18 D3 Mfg CB
Control Coddington 18 D3 Mfg CB
Control Coddington 18 D3 Mfg CB
Copens Creek Chemical Corp
COPRES

Copies Core Copies Copi Pecura Paint Co Inc
PITTSBURGH PLATE GLASS CO
Prima Products Inc Industrial Dep
PROTECTION PRODUCTS MFG CO PRETECTION PRODUCTS WI Ranetite Mig Co. Reilly Tar & Chemical Corp Sika fine Sonnebern (L.) Sons Ine Standard Dry Wail Products Sullivan Constries Ine Standard Dry Wail Products Sullivan Constries Ine Tracon Laboratories Tracon Laboratories Tracon Laboratories Tuferte Co. Vita-Var Corp Waterlox Div Empire Varnish Co Weather-Seal Co X-Pando Corp

#### WATERPROOFING, INTEGRAL

Adensite Co American Fluresit Co Inc Anti-Hydro Waterproofing Co Blue Ridge Tale Co Inc Ceresit Waterproofing Corp COPROX INC COPROX ING flow Chemical Co Evercrete Corp Fort Pitt Chemical Co Harrop Chemical Co Horn (A C) Co Inc JOHNS-MANVILLE CORP KAY-TITE CO Linde Air Products Co MEDUSA PORTLAND CEMENT CO Oldo Hydrate & Supply Co PITTSBURGH PLATE GLASS CO PROTECTION PRODUCTS MFG CO PROTECTION PRODUCTS WITH C Ranetitie Mfg Co Sealcon Products Inc Sonneborn (L) Sons Inc Spray-0-Bond Co Standard Dry Wall Products Inc Steelcote Mfg Co Stonbard Co Sullivan Co econnard Co
Stallina Control Inc
Total Reculters Inc
Truscen Laboratories Die Devoe & Raynolds
Inc
Tuffall Reculter
Vita-Var Corp.
Weather Seal Co

#### WATERPROOFING. MEMBRANE

American Asphalt Boof Corp CABOT (SAMUEL) INC BARRETT DIV ALLIED CHEMICAL & SYE CAREY (PHILIP) MFG CO FLINTKOTE CO Horn (A C) Co Ine
JOHNS-MANVILLE CORP
KAY-TITE CO
Koppers Co Ine
Lebon Co Lebon Co Minwax Fo Inc PITTSBURGH PLATE GLASS CO Pressile Engineering Co Ranctite Mfg Co Inc Barbher & Plattle Coated Products Co Inc Scalons Products Inc SISALKRAFT CO Bonneborn (L) Bons Co

Truscon Laborateries Div Devoe & Eaynelds William & Williams Co WURDACK CHEMICAL CO X-Pando Corp Vita-Var Corp. Wasco Flashing Ca.

#### WATERPROOFING. METALLIC

Belmont Smelting & Befining Works Inc Ceresit Waterproofing Corp Evercrete Corp Fort Pitt Chemical Co Gibson-Homans Co
Hern (A C) Co
Kedmont Mfg Waterprouding Co Inc
Lebon Co Ranetite Mfg Co Inc. Inc Seateon Products Inc
SiSALKRAFF CO
Seaneshoru (L) Sons Inc
Tamms Industries Inc
Truscon Laboratories Div Devoc & Baynolds Inc Weather Scal Co

#### WATERPROOFING. PREFORMED UNIT Brisk Waterproofing Co Inc

#### **▶** WATERPROOFING. SURFACE TYPE

densite Co Inc merican Asphalt Roof Corp merican Fluresit Co Inc mit-Hydro Waterproofing Co Armor Laboratories BARRETT DIV ALLIED CHEMICAL & DYE CORP BIRD & SON INC Breinig Brothers Inc CABOT (SAMUEL) INC CALBAR PAINT & VARNISH CO Camp Chemical Co Inc CAREY (PHILIP) MFG CO Ceresit Waterproofing Corp CERTAIN-TEED PRODUCTS CORP Chapman Chemical Co Coopers Creek Chemical Corp Devoe & Raynolds Co Inc. Function Composition Control of C Glidden Co Harrop Chemical Co Horn (A C) Co Inc Hydrozo Products Inc JOHNS-MANVILLE CORP KAYTITE CO astik Products Co Inc. asting Products Co. chon Co. inde Air Product Co Mar-Kay Mfg Co MEDUSA PORTLAND CEMENT CO MIRACLE ADHESIVE CORP Mixtite Corp ##00RE (G00DLOE E) CO Nationalite Chemical Produc ducta Inc. Nelsonite Chemical Products Ine Pavinoleum Inc Pecota Paint Co Pioneer Mfg Co PITTSBURGH PLATE GLASS CB Pressite Engineering Co Prima Products Inc PROTECTION PRODUCTS MFG CO PROTECTIVE PAPERS INC Bachond Products Co
RUSE-REID CS
Rust-Oleum Corp
Scaleon Products Inc
Sonnehorn CL 1 Sonn Inc
Spray-O-Bend Co
Standard Pty Wall Products Inc
Steeleste Mfg Co
Stonhard Co

Stonbard Co Stopall Waterproving Mfrs Inc Sultran Co Stopal Waterproving Mfrs Inc Sultran Co Stopal Co Stopal Co Trams Industries Inc TEXAS CS Truncon Laboratories Die Devoe & Rayuolds Tuferete Co Inc Juffall Inc Tuferete Co Inc Tuffait Inc United Gilmoitta Laboratories Vita-Var Corp Waterloo Div Empire Varnish Co Wayne Chemical Products Co Weather Scal Co Wester Carvas Products Co Werner Carvas Products Co Wesen Waterpaints Inc

#### WATERPROOFING. TRANSPARENT

lensite Co Inc nerican Fluresit Co Inc ati-Hydro Waterproofing Co Anti-Hydro Waterproofing Co CABOT (SAMUEL) INC CALBAR PAINT & VARNISH CO Celadri Corp Ceraseal Chemical Corp Ceraseal Chemical Corp Ceresit Waterproofing Corp CON-COR PAINT CO Continental Asbestos & Refining Corp Continue of the continue of th Prima Products Inc PROTECTION PRODUCTS MFG CO PROTECTION
Ranctite Mfg Co
Scalcon Products Inc
Sonneborn (L) Sons Inc
Standard Dry Wall Products Inc Someborn (L) Sons Inc Standard Dry Wall Products Inc Sullivan Co Tamms Industries Inc Truscon Laboratories Div Devoe & Raynolds THE THE VILLA VALUE OF THE VILLA VALUE OF WHITE VALUE OF WHITE VALUE OF THE VALUE O **▶** WEATHERSTRIPPING

Accurate Metal Weatherstrip Co ALLMETAL WEATHERSTRIP CO Ather Mfg Co BALTZ (R N) & CO Barland Wentherstrip Material Co Bridgeport Fabrics Inc CENTRAL METAL STRIP CO CENTRAL METAL STRIP CO
Chamberlin Co of America
Deflance Metal Weatherstrip Co
Dennis (W J) & Co
Dorbin Metal Strip Mfg Co
Durkee-Atwood Co
Dryke Brothers
E-Z Tight
Gardner Wire Co
Glazlers' Tool Mfg Corp
Handyman Co
Ideal Co
Ideal Co Handyman Co Ideal Co Lock Joint Window Co MACKLAMBURG-DUNCAN CO MASTER METAL STRIP SERVICE INC WILWAUKEE STRIP SERVICE INC WILWAUKE STRIP SERVICE INC WILWAUKE STRIP SERVICE INC WILWAUKEE STRIP SERVI
Monarch Hietal Weatherstrip
Mortell (J W Co
National Guard Products
National Metal Products Co
Nichols Metal Strip Service
N 8 W Co
Pressite Englueering Co
Protex Weatherstrip Mg Co
Recow Metal Weatherstrip CR
Rhodes (James H) & Co Weatherstrip Corp. Robbins Mfg Co Security Co
Southern Metal Products Corp.
Spanjers (A J) Co
Van Cleef Brothers Inc Warnica Products
WEATHERPROOF PRODUCTS CORP

#### **▶ WEATHERSTRIPPING. COMBINATION SASH** BALANCE

ZEGERS INC

ALIMETAL WEATHERSTRIP CO CENTRAL METAL STRIP CO MASTER METAL STRIP SERVICE INC MILWAUKEE STRIP SERVICE INC WEATHERPROOF PRODUCTS COMP ZEGERS INC

#### **▶** WEATHERSTRIPPING, DOOR AND DOOR BOTTOM

Accurate Metal Weatherstrip Co BALTZ (R N) & CO CECO STEEL PRODUCTS CORP Colgate Mfg Corp Dennis (W J) & Co Borbin Metal Strip Mfg Co MACKLANBURG-DUNGAN CO MASTER METAL STRIP SERVICE INC

Manufacturers' Names and Addresses Start on Page D-76 Manufacturers' Brand Name Identifications Start on Page D-64

Sentry Stop-A-Draft Co Thermal Co WAGNER WFG CO Waterloo Sales Co WEATHERPROOF PRODUCTS CORP Werner (R D) Co Inc ZEGERS INC

#### **▶ WHEELBARROWS**

American Steel Scraper & Wheelbarrow Ce Atlas Car & Mfg Co Chattanoga, Wheelbarrow Co French & Hecht Dir Kelsey-Hayes Wheel Co Goodrich (B F) Co Goodycar Tire & Bubber Co Jackson Mr. & Bubber Co Lansing Co
Novo Engine Co
PRIME MOVER CO
Seymour Mfg Co Inc
Sterling Whoelbarrow Co
Toledo Wheelbarrow Co
Western Wheel Barrow Mfg Co

#### WHEELS, GRINDING Inc

Albertson & Co Inc ALLIS-CHALMERS MFG CO DREMEL MFG CO Fairbanks Morse & Co General Hardware Co Goodrich Grinding Wheel Co Janchett Mfg Co INDEPENDENT PHEUMATIC TOOL CO Macklin Co Mid-West Ahrasive Co Norton Co Simonds Abrasive Co Div Simonds Saw & Steel SKILSAW INC Sterling Grinding Wheel Div Cleveland Quar-Fies Co Vitrified Wheel Co

#### WHEELS, HAND TRUCK

Electric Wheel Co French & Hecht Div Kelsey-Hayes Wheel Co General Tire & Rubber Co Hamilton Caster & Mfg Co Lansing Co Nutting Truck & Caster Co Thomas Truck & Caster Co

#### WINCHES, HAND

Bridgeport Chain & Mfg Co Clyde Iron Works Inc Eric Hoist Co Stephens-Adamson Mfg Co

### **WINCHES, TRACTOR AND**

American Hoist & Derrick Co Bridgeport Chain & Mfg Co Four Wheel Drive Auto Co Fruehauf Trailer Co BLIVER CORP INDUSTRIAL DIV Original Enderes Co Round (David) & Son Shepard Niles Crane & Hoist Corp Silent Hoist & Crane Co Stimmel Winch Co Wood (Gar) Industries

#### **▶ WINDMILLS**

Aermotor Co
Baker Mfg Co
Baker Mfg Co
Formater Mill Mfg Co
Fairbanks Morse & Co
Filin & WALLING MFG CO
New England Tank & Tower Co
Stover Steel Tank & Mfg Co

#### WINDOW OPERATORS

Bommer Spring Hinge Co Inc CASEMENT HARDWARE CO Chicago Spring Hinge Co CORBIN (P & F) DIV AMERICAN MARD-WARE CORP CROFT STEEL PRODUCTS INC Eagle Lock Co GETTY (H S) & CO INC Mfg Div Aveo Corp Horton Mfg Div Aveo Corp tree (H B) Co Kaptur (Joseph J) Sales Co Kolbus (K) Corp LAN Closers Inc LOCKWOOD HARDWARE MFG CO Newell Mfg Co New England Mfg & Supply Corp Norton Door Closer Co Norwalk Lock Co Div Segal Lock & Hardware Parker (S) Hardware Mfg Co

YEXAS CO Tremco Mfg Co

Bradius Mardware Corp.

Resection Products MFG CO

RESECTION OF MFG CO

RESECTION OF MFG CO

MARE CORP.

SAREETT & CO

SAREETT & CO

SAREETT & CO

STANLES HERDWARE CO INC

STANLES HERDWARE MFG CO

WAGNER MFG CO

VALE & TOWN MFG CO

VALE & TOWN MFG CO

VALE & TOWN MFG FG CO

VALE & TOWN MFG FG CO

VALE & TOWN MFG FG CO

#### **WINDOW SASH PULLEYS**

Arcade Mig Div Rockwell Mig Co
Chantrell Hardware & Youl Co
Chantrell Hardware & Youl Co
Chentrell Hardware & Youl Co
Chemist (P. & F.) BIV AMERICAN HARBCENBEN (P. & F.) BIV AMERICAN HARBGETTY (M. & CO INC
GTANT FULLY & GARDWARE CO
HAGER (C) & SONS HINGE NFG CO
Louden Machinery Co
Haderial From Works
Louden Machinery Co
Penn Hardware Co
Reading Hardware Co
Reading Hardware Co
FORTH CO
FORTH

#### ▶ WINDOW SCREENS, ALUMI-NUM FRAME

Alumatic Curp of America
Alumatic Curp of America
Alumatic Corp
Kanna Mic Corp
Kaufmann Curp
Kaufman

#### WINDOW SCREENS, ROLLING

Baer American Window Co Barnhart (A W) Co Kann Mig College KEYSTONE WINE CLOTH CO Lockhart Mig Corp Metaleraft Serven Co BUSIGERS OF MIGHT CO BUSIGERS AND CO WINDOW TO CONTROL CO Universal Roller Serven Co

### ▶ WINDOW SCREENS, STEEL FRAME

A B C Steel Equipment Co
Alumatic Corp of America
Care STEEL PRODUCTS CORP
Chamberlin Co of America
Care STEEL PRODUCTS CORP
Chamberlin Co of America
Chichiant Fif Piscero Div Rousell (F C) Co
Continential Serven Co
Continential Serven Co
CONTENT STEEL PRODUCTS INC
Dentits (W J) & Co
CONTENT STEEL PRODUCTS INC
DENTIS (W J) & CO
CERERAL BROWLE CORP
GOODERST MEAL PRODUCTS
GARRIES WINDOWS INC
LINGTON CORP
HOPE'S WINDOWS INC
LINGTON CORP
MENT AND CORP
MENT STEEL CORP
MENT STEEL

#### ▶ WINDOW SCREENS, SUN REFLECTING

Flex-O-Glass Mfg Co ETNEMAL ENGATE COMP Ingersoll Steel Div Borg-Warner Corp KAISER ALUMINUM & CHEMICAL CORP

### WINDOW SCREENS, WOOD FRAME

Alumatic Corp of America American Sash & Door Co ANGEL NOVELTY CO

Rurke Millwork Co CARR ADAMS & COLLIER CO COFFMAN (R G) CO

Continental Serven. Co. CR95STI LUBBER CO. CR95STI LUBBER CO. Cross Slade & Serven Co. CR95STI LUBBER CO. Cross Slade & Serven Co. Cross Slade Co. Cross S

#### WINDOW SILLS & STOOLS, METAL

Accurate Metal Weather Strip Co Alexander Sill Co Aluminum Co of America Douley Brothers FERESTRA SUILDING PRODUCTS INLAND STEEL PRODUCTS CO Knapp Brothers Mfg Co Soile Steel Co TRUSCOM STEEL CO

#### WINDOW STOOLS, LAMIN-ATE COVERING

Kerreo Products Co

#### WINDOW SURROUNDS, STEEL

HOPE'S WINDOWS INLAND STEEL PRODUCTS CO TRUSCON STEEL CO

#### WINDOWS, ALUMINUM, GLASS LOUVRES

Clearview Louvez Window Co Outside Venetian Blind Co SOLAR AIR-FLO

### WINDOWS, AWNING,

PRESERVA ARE CAPPED LOTS INC All-Lite Metal Window Co All-Lite Metal Window Co Area Vent All missions Curp Rown & Grief.

CAPPT STEEL PADDUCTS INC SUB LUNDELL-ECKRERG WIG CO FANSCO WIFE DOV FALLS STAMPING & FERESTAR BUILDING PRODUCTS FESTION ROWED Works Inc CEMERAL UNDRIED COMPANY WITHOUT DIVINITIES MORNING COPP ALWINITITE DIVINITIES MORNING WORD ROW COP ROMED TO WORK C

## WINDOWS, AWNING, WOOD

Fox Brothers Mfg Co GATE CITY SASW & DOOR CO LUDMAN CORP ROLSCREEN CO

#### WINDOWS, BARN, STEEL

Adams Co
Adams STEEL PRODUCTS CORP
Clay Sulpinement Corp.
Care Sulpinement Corp.
Care Steel PRODUCTS CORP.
Care Steel PRODUCTS ON CORP.
CITICAL Inc.
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CONSTRUCTION PRODUCTS
CONTROL OF CORP.
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#### **WINDOWS, BARN, WOOD**

American Sash & Door Co
AMBUESSEM CORP
Buffeles Lumber & Mfg Co
Buffeles Lumber & Mfg Co
Buffeles Lumber & Collise CO
Cole Mfg Co
Low Cole Cole
Buttin Mfg Co
Low Cole
Buttin Mfg Co
Co
Morther Bash & Door Co
Northern Bash & Door Co
Sorbibe & Kobibhaus Co
Seguile & Kobibhaus Co
Sibernage (George J) & Sons Co
Sookane Sash & Doer Co
Northern Bash & Do

### WINDOWS, BASEMENT,

ALCASCO PRODUCTS INC Aluminum Window Corp. CROFT STEEL PRODUCTS INC FLYNN (MICHAEL) MFG CO KAUTMANN CORP. KEWANEE MFG CO UNION ALUMINUM CO Valler MALL PRODUCTS CO

### WINDOWS, BASEMENT

Adams Co Barnhart (A W) Co Bogert & Carlough Co Decatur Iron & Reed Co Fries & Ron International Based Co Thorn (J S) Co Valley Metal Froducts Co VENTO STEEL PRODUCTS CO INC

### WINDOWS, BASEMENT, WOOD

ANDERSER CORP ME CO
ANDERSER CORP ME CO
ANGEL ROVELTY CO
BUTTO MILITARY
CARR ADAMS & COLLIER CO
CURTIS COS INC
CURTIS COS INC
CURTIS COS INC
CRECE & SON INC
CRECE & SON INC
CRECE & SON INC
LOUNT CONTROL CO
HOUSE MILITARY
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Miami Window Corp

Bon-del Ine
Stewart Iron Works Co Inc
Stewart Iron Works Co Inc
Super-Vent Co
Northern Sash & Bour Co

Manufacturers' Names and Addresses Start on Page D-76
Manufacturers' Brand Name Identifications Start on Page D-64

Bock Island Millwork Co RDISCREEN CO Segelke & Kohlnam Co Silbernagel (George J) & Sonn Co WEVERNAEUSER SALES CO White Pine Sash Co

## WINDOWS, BASEMENT AND UTILITY, STEEL

Adams Co
ACAGO MERCO TEND
ALCARCO MEDICA THE
ACACACO MEDICA THE
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# WINDOWS, CASEMENT, ALUMINUM

ALCHIPTOUT

ABARBA WESTLAKE CO

ALCASCO PROBUCTS INC

AIMMINISM FOR PROBUCTS INC

AIMMINISM FOR PROBUCTS INC

AIMMINISM FOR PROBUCTS INC

CARPT STEEL PRODUCTS INC

CARPT STEEL PROBUCTS INC

CARPT STEEL PROBUCTS INC

CARPT STEEL PROBUCTS

EAGL-PICHOR CONTROL

FOR THE STEEL PROBUCTS

EAGL-PICHOR CONTROL

EAGL-PICHOR

E

### WINDOWS, CASEMENT,

STEEL
A B C Steel Equito Co
Allies their Products
A B C Steel Equito Co
Allies their Products
A C Co
Bayler (William) Co
CECO STEEL A ENGINEERING CO
CORFT STEEL A ENGINEERING
FLEENTER TOOL STEEL
FLEENTER TOOL
CORFT STEEL PRODUCTS
FLEENTER STEEL CO
LICENTER WILLIAM FOR STEEL CO
LICENTER WILLIAM
LOCAL PRODUCTS
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RUSSELL (F C) CO Screens & Fabricated Metals Co Soule Steel Co Steel Window Products Co Thorn (J S) Co TRUSCOS STEEL CO VENTO STEEL PRODUCTS CO INC Vimear Bales Co Williams & Williams Products Corp.

## WINDOWS, CASEMENT, WOOD

Biles-Coleman Lumber Co Inc
BROWS-GRAVES CO
BROWS-GRAVES CO
CARS ADAMS & COLLIER CO
COLE MIG CO
CUSTIS COS INC
Farley & Lostscher Mig Co
GREGA SO HOR
GREGA SO HOR
HOTEL COLEMAN COLEMAN
HOTEL COLEMAN

#### WINDOWS, COMBINATION SCREEN AND STORM SASH, ALUMINUM

Alsoo Inc.
Almontise Corp of America
Almontism Window Corp
Almontom Window Corp
Compo. Miracle Products Co
GENERAL BROWNE CORP
Eagl-Picher Coll Spring Mig Co
Holizor Coll Spring Mig Co
Holizor Coll Spring Mig Co
RUSSELL (F C) CO
RUSSELL (F C) CO
RUSSELL (F C) CO
Window Mig Co

#### WINDOWS, COMBINATION SCREEN AND STORM SASH, STEEL

Allted Metal Fabricators Inc
Altonatic Comparation of America
Altonatic Comparation of America
Barley (William) Co.
CECO STEEL PRODUCTS CO.
CAMBERTIN CO of America Inc
Clay Engineers Corp.
COLTY-Jamesbown MFC Corp.
FEMESTAR BUILDING PRODUCTS
GENERAL BROAZE CORP. ALWINITIE DIV
Ingervall Steel bits Borg Watner Corp.
Kaufmann. Corp.
Kaufmann. Corp.
Kaufmann. Corp.
Michel & Frieffer Iron. Works
THESCON STREEL CO.

#### WINDOWS, COMBINATION SCREEN AND STORM SASH, WOOD

ANDERSE CARP
Anderson IV E1 Mig Co
ANGEL NOVELTY CO
BROWN GRAVES CO
Burke Millwork CO
Burke Millwork CO
Burke Millwork CO
Edward Windows COP
Earley & Loctober Mig Co
Feather-List Mig Co
Feather-List Mig Co
GREGE & SON INC
Hempitil CA D1 Co
Marquart Millwork CO
Northern Sank & Door Co
Northern Wood Product Co
Northern Wood Product Co

Phenix Mfg Co Prentice (F W) & Co Prentice (F W) & Co Schunzeler (F E) Co Scentity Sant & Screen Co Secrety Sant & Screen Co Self STBRING WINDOW CO Seneca Lumber & Millwork Co Spokane Sant & Door Co Weather-Soal Inc Window Conditioning Co Wonder Window Co

#### ► WINDOWS, DOUBLE-GLAZED, HERMETICALLY SEALED

LIBBEY-OWENS FORD GLASS CO

## WINDOWS, DOUBLE-HUNG, ALUMINUM

ALCASE PRODUCTS INC.

Alone Ion. Window Corp.

Bayler (William) Co.

Compo. Miracle Products inc.

Compo. Miracle Products inc.

Compo. Miracle Products inc.

Compo. Miracle Products inc.

Eagle Picher Co.

Harris, Inc.

Eagle Picher Co.

Eagle Picher Co.

Eagle Picher Co.

Eagle Picher Co.

Paramount Caement Window Corp.

Paramount Caement Window Corp.

Peramount Caement Co.

### WINDOWS, DOUBLE HUNG,

SAPETY International Safety Window Corp

### WINDOWS, DOUBLE HUNG,

ADAMS & WESTLAKE CO American Sized Metal Works American Sized Metal Works OBS. DEE FRANE CORP Poutery (8 H) CO Inc Pouts-Farrington CO RUSSELL (F C) CO Steel Window Products CO Steel Window Products CO Sterling Windows Inc Thorn (3 H) CO TRUSCOM STEEL CO

## WINDOWS, DOUBLE HUNG, WOOD

Are seal Bitte Sales & Window Mfg Co Inc Amortican Sanh & Boot Co Amortican Sanh & Boot Co Amortican Sanh & Boot Co A R B Window Co Bitter Coleman Lumber Co Inc Bitter Lumber A. Mfg Co Cane Adams & Collier Co Coleman Lumber Co Inc Coleman Lumber Co Incert Microsoft Coleman Lumber Co Gusten Sain & Inco Co Gusten Sain & Inco

Hattig Mig Co
Hattig Sanh & Door Co
Hattig Sanh & Door Co
Hattig Sanh & Door Co
Kinnia Pine Mille Co
Kinnia Pine Mille Co
Lettroo Building Products
Lettroo Products
Lettroo Products
Lettroo Building Products
Lettroo Co
Marquart Millwork Co
Marquart Millwork Co
Marquart Millwork Co
Morgan Sanh & Door Co
Pacific Millwork
Millwork Co
Radford Co
Radford Co
Radford Co
Radford Co
Rock Lainad Millwork Co
Rock Lainad Millwork Co
Rock Lainad Millwork Co
Septile & Koliliaus Co
Western Pine Mig Co Lid

#### WINDOWS, GLASS BLOCK AND SLIDING SASH

AMERICAN STRUCTURAL PRODUCTS CO

#### WINDOWS, HORIZONTAL GLIDING, METAL GENERAL BROWLE CORP NOVA SALES INC PETERSON WINDOW CO VITA Automatic Windows Inc

## WINDOWS, HORIZONTAL GLIDING, WOOD

AND USER CONP AND USER CONP Burke Millwork Co Farley & Lockscher Mfg Co GREGE & 50N Kinnus Pice Mills Co LONG-RELL LUBBER CO Morgan Co Morgan Co Ribernagel (George) & Sons Co Spokane Sash & Door Co Western Pine Mfg Co Western Pine Mfg Co

#### WINDOWS, IRON, WROUGHT

Mesker Bros

#### WINDOWS, LOUVRE ALUMINUM

Fentron Steel Works Inc LUDMAN CORP Midwest Louvrelite Co Pro-Tect-U Jalousic Corp SqLAR Alfa-FLS CS Trim-Set Corp Sub Fentron Steel Works Inc Ventilite Corp

#### WINDOWS, LOUVRE, STEEL Stewart Iron Works Co Inc SUM SASM CO

#### WINDOWS, PIVOTED AND PROJECTED ALUMINUM

A B C Steel Equipment Co
Aluminum Window Corp.
Barnhart (A W) Co
Bayler (William) Co
FLYMM (WIGHAEL) MFG CO
GENERAL BRONZE COMP
BEYMOLDS METALS CO
TIMM Industries Inc
Universal Window Co
Valley Metal Products Co
Varley Metal Products Co

#### WINDOWS, PIVOTED AND PROJECTED, STEEL

Adams Co Allen Steel Products

Manufacturers' Names and Addresses Start on Page D-76
Manufacturers' Brand Name Identifications Start on Page D-64

BORTA CATIONS CO CEC STEEL A EMGINEERING CO CRITICAL DESCRIPTION OF CONTROL O

## WINDOWS, PIVOTED AND PROJECTED, WOOD

Farley & Locischer Mfg Co Hayman Window Co Huttig Sash & Door Co KEWANEE MFG CØ Marquart Millwork Co Morgan Sash & Door Co Pacific Mutual Boor Co Segelke & Kobihass Co Silbernagel (George) & Ronn Co

## WINDOWS, ROUND, WOOD CURTIS COS INC Webb Mrg Co

#### **▶** WINDOWS, SECURITY, STEEL

Bayley (William) to CCCO STEEL PROBUCTS COMP CAPCO STEEL & EMGINEERING CO CHITCHIA IN-CHOST STEEL PROBUCTS FIVEN (MICHAEL) MFG CO MIPPE'S WINDOWS 1MC International Steel Co Kaptur (Johny J. Co TRUSCOM STEEL CO VERTE STEEL PROBUCTS CO INC

#### WINDOWS, STORM, ALUMINUM

Alseo Inc Aluminum Window Corp GEC@ STEEL PRODUCTS CORP Eagle-Picher Co Steel Window Products Co

#### **WINDOWS, STORM, STEEL**

Adams Co
Adams Co
Aluminum Window Corp
Aluminum Window Corp
Aluminum Window Corp
Barnhart (A W & & Co
CECO STEEL PRODUCTS COMP
Chamberlin Co of America
CROFT STEEL PRODUCTS INC
CROFT STEEL PRODUCTS
Holister FOR THE COMPETS WINDOWS INC
Ingressil Steel Dis Borg Warner Corp
Ingressil Steel Dis Borg Warner Corp
Ingressil Steel Dis Borg Warner Corp
REW MORACE MACHINE A STAMPING
OFFICE WINDOW SETILE CO
MEY MORACE MACHINE A STAMPING
OFFICE STEEL CAMPING COP
REVINDUM SITE CO
SOURCE STEEL CAMPING CO
STEEL CAMPING
STEEL CO
STEEL CAMPING CO
STEEL CAMPING
STEEL CO
STEEL CAMPING CO
STEEL CAMPING
STEEL CAMP

Weather-Proof Co Williams Oil-O-Matle Div Eureks Williams Corp Wilson (L S) Mfg Co

VENTO STEEL PRODUCTS CO INC.

### ▶ WINDOWS, STORM, WOOD

ANDERSEE CORPANDERSEE CORPANDERSEE CORPANDERSEE NOVELTY CO ARROW ME CO CO BROWN GRAVES CO BROWN GRAVES CO CONTINUES CONTI

Hemphill (A D) Co Rines (Edward) Lumber Co Hoosier Rash & Door Co Hustig Mfg Co Huttig Sash & Door Co Kingua Pine Mills Co Lews-Sell Lumber Co Marquart Millwork Co LOWG-BELL LUMBER CO Marquart Millhowts Co Metal Window Service Co Minmoula White Pine Sash Co Morgan Sash & Door Co National Screen Door Co National Screen Door Co Northern Sash & Door Co Profile William Door Co Profile William Door Co Profile (F W) & Co Roach & Muser Co Phenix Mfg Co Inc
Prenatice (P W) & Co
Roach & Musser Co
Roach & Musser Co
Rock Island Millwork Co
Rock Island Millwork Co
Rock Island Millwork Co
Sought & Kohlinum & Co
Scence Lumber & Millwork Co
Silbernage! (George J) & Sond Co
Spokane Sash & Door Co
Vincer Sales Co
Window Conditioning Co
Window Conditioning Co

#### WINDOWS, VERTICAL GAID-ING, ELECTRICALLY OPER-ATED

RUSSELL (F C) CO Vita Automatic Windows Int

#### WINDOWS, WOOD, WITH LOURVES BELOW

SOLAR AIR-FLO CO

# BERGER MFG CO DIV REPUBLIC STEEL

WIRE, BALING Wickwire Spencer Steel Bir Colorudo Fuel & Iron Corp

#### WIRE, BARBED

American Chain Link Fence Co AMERICAN STEEL & WIRE CO BAMBRICK (RICHARD J) Colorado Fuel & Iron COLUMBIA STEEL CO Continental Steel Corp COPPERWELD STEEL CO Jones & Laughlin Corp KEYSTONE STEEL & WIRE CO NICHOLS WIRE & ALUMINUM CO Northwestern Steel & Wire Co PITTSBURGH STEEL PRODUCTS CO REPUBLIC STEEL CORP Sheffield Steel Corp
TENNESSEE COAL FROM & RR CO SUB
U S STEEL CORP

WIRE, ELECTRICAL
AMERICAN STEEL & WIRE CD
Anaconda Wire & Cable Co Anaconda Wire & Cable Co CHASE BRASS & COPPER CO COPPERWELD STEEL CO

Emert Wire Corp Parantic Wire & Cable Dir
General Cable Corp Sub Anaconda Copper Ca
GERERAL ELECTRIC CO CENSTRUCTION
MATERIALS DEFT CASSTRUCTION
HATERIALS DEFT CONTROLLE COP
Razand Insulated Wire Works Dir Giomite Co
National Electric Products Corp
Reverve Copper à Brass Inc.
Borbling's (John A) Sons Co
U S Robber CO
WIPING CYCTEASC DE

#### WIRE, GALVANIZED STEEL American Chain Link Fence Co AMERICAN STEEL & WINE CO Armeo Steel Corp

Armeo Steel Corp Bethlehem Steel Corp Century Fence Co Colorado Fuel & Iron Corp COLUMBIA STITL CO CÉLUMBIA STEIL CO CONTINENTA SICEL COP Johnson Steel & Wire Co Johnson Steel & Wire Co Johnson Steel & Wire Co KLYSTONE STEEL AWNE CO NCTUMESTEEN STEEL POWNETS CO METUNISMENT STEEL POWNETS CO REPUBLIC STEEL COMP STEEL STEEL COMP Sheffeld Steel Corp TERNESSEE COAL IRON & RAILEBAD CO Wickwire Spencer Steel I'v Colorado Fuel & Iron Corp Wilson Steel & Wire Co Youngstown Sheet & Tube Co

#### WIRE PULLERS AND STRETCHERS

AMERICAN STEEL & WIRE CO Bethlehem Steel Co entury Fence Co ontinental Steel Corp Franklin Equipment Co
KEYSTONE STEEL & WIRE CO
Londen Machinery Co
Mason Fence Co
Mid-States Steel & Wire Co
Ney Mig Co
Northus Ney Mfg Co Northwestern Steel & Wire Co PITTSBURGH STEEL PRODUCTS CO Sterling Foundry Co Von Steen (John H) Co

#### **WIRE STRIPPERS**

Bockford Wire Stripper Co

#### WIRE, TIE

Alabama Metal Lath Co American Brass Co AMERICAN STEEL & WIRE CO BOSTWICK STEEL LATH CO CECO STEEL PRODUCTS CORP COPPERWELD STEEL CO INLAND STEEL PRODUCTS CO International Nickel Co Inc KEYSTONE STEEL & WIRE CO NATIONAL GYPSUM CO Print Midal Co Inc

Sommer Midalatraft Corp

SYMORS CLAMP & MFG CB

TRUSCON STELL CB

TRUSCON STELL CB

Wickwise Spencer Steel Div Colorado Fuel A

For Cap

Woodbwork, FlamePROOF

For Bouliness

Woodbwork, FlamePROOF

For Bouliness

AMERICAN TELEPHONE & TELEGRAPH CS

#### **▶ WIRING, SYSTEMS, REMOTE** CONTROL

GENERAL ELECTRIC CO CONSTRUCTION

#### WOOD, BALSA

Lumber Corp

#### **WOOD, COMPREGNATED**

Actna Plywood & Vencer Co Farley & Loctscher Mfg Co Parkwood Corp Plaswood Corp Pluswood Industries est Oregon Lum

#### WOOD, PLASTIC

PITTSBURGH PLATE GLASS CO

#### **WOOD, SEALERS**

AMERICAN FLOOR SURFACING MACHINE

CO BRUCE (E L) CO Chemical Co Chapman Chemical Co Devoe & Raynolds Inc Du Port (E I) de Nemours Co Forman-Ford & Co LINSEED OIL PRODUCTS Malex Chemical Corp Prait & Lambert Inc Sherwin-Williams Co U S PLYWOOD CORP

## **WOOD SEALERS, KNOT**

CELOTEX CORP

#### **▶ WOOD TREATING PLANTS**

American Crossoting Co Inc Carbolineum Wood Preserving Co Crossly Lumber & Mig Co Forders-Crossett Lumber Co For Brothers Mig Co Frost Lumber Instituties Inc Guiffort Crossoting Co Guiff States Crossoting Co Cult States Crossoting Co International Commonting Co Recognizational Communication Communications of the Arresting Dir Minnesota & Ontario Faper Computing Communication Communicatio

#### **WOODWORKING MACHINES**

rking Markine Co ATLAS PRESS CO Beach Mfg Co
BLACK & DECKER MFG CO
BOICE-CRANE CO
Buss Machine Works
Chate Turbine Mfg Co
Chattanooga Machinery Co
Circo Tool Co C K L Machinery Co CONSOLIDATED MACHINERY & SUPPLY

COLVOIR MACHINE ACCORD COMMINS
FORTABLE TOBLE DIV
Curtin Machine Corp
Defiance Machine Works
Dependable Machine Co
DEWALT HEC Dependable Machine Co
DEWALY INC
DEWALY
DEWALY Palmer Machinery Co
PARKS, WOODWORKING MACHINE CO
PORTER-CABLE MACHINE CO
Power-King Tool Corp
Powermattle Machine Co
Pringle & Brodie Machinery Co Richardson (J S) Co ROCKWELL MFG CO DELTA POWER TOOL

MOCRWELL MISSISSIP STANLEY STANLEY ELECTRIC TOOLS DIV STANLEY MERKS. Mississip Co Structure Co Markingty Co Markingty Co

rner Machine rner Mfg Co anegut Mould

Yurser Mfg Co
Yumngut Munder Corp
WALKER-TURNER DIV KEARNEY &
THERKER CORP
WALLEG U D. A. CO
WHITEN KRATER D. A. 50M INC
WHITEN SAW DIV Media Machine Works Ine
Woods (S. A.) Mechine Co
Yates-American Machine Co

#### **▶ WRENCHES**

Barcalo Mfg Co BLACK & DECKER WFE CO Heller Bros Co INDEPENDENT PNEUMATIC TOOL CO International Twist Brill Corp North Brothers Mig Co Div Stanley Tools P & C Hand Forged Tool Co Peck Stow & Wilcox Co Proto Tool Co Walworth Co

#### **YARD LAYOUT SERVICES**

# 1952 American Builder Directory

## SECTION II

# **Brand Names**

## Alphabetical List of Building Products and Equipment

The names of manufacturers who are regular advertisers in American Builder appear in bold face here and in the list of manufacturers' names and addresses starting on page D-76

B RAND NAMES used to identify principal building products and equipment of major manufacturers are listed in this section in alphabetical order with the names of manufacturers using the brand names. Trade and brand names popularly used in the building industry are listed irrespective of their registration. This selective list is presented for the convenience of builders, contractors, architects and retail material dealers who will find it helpful in identifying the manufacturers of certain building products and equipment.

The names of the manufacturers are listed after the brand or trade name. The complete addresses of the manufacturers will be found in Section III beginning on page D-76.

A A A—Athins (C E) & Co
A A QUICKSNT PUTTY—King (E & F) &
Co Ine
A B—Allarfer Bruthers Co
ABC—Anterican Blower Corp
A B C—Allarfer Bruthers Co
ARC—Allarder Bruthers Co
AC CD—Allarder Bruthers Co
AC CD—Allarder Bruthers Co
AC CD—Allarder Bruthers Co
AC CD—American Chain Div of American
Chain & Colib Co Inc
Chain & Colib Co Inc

ACCOTEX-Armstrong Cork Co

IDOL Sullivan Co

ACL—Owens-Illinois Glass Co ACME NESTABLE—Republic Steel Corp

ACME-Goldblatt Tool Co ACME - Certain-teed Products

ACME—Keystone Steel & Wire Co ACME—Inland Steel Products Co ACOUSTI-CELOTEX-Celetex Corp. ACOUSTILITE-Insulite Div Min nesota & Ontario Paper Co

ACRETONE—U 8 Gypsum Co ACRATHERM—Minneapolis-Honeywell Regulater Co ACROFLAME—American Radiator & Standard Sanitary Corp

A-D BOARD-Carey (Philip) Mfg

Co ADDRESSERETTE—Elliott Addressing Ma-

chine Co ADJUSTA-LITE—Adjusta-Post Mfg Co ADJUSTO—Milwaukee Flush Valve Co ADMIRAL—Fiat Metal Mfg Co ADURO-Flintkote Co

AEROLUX—Johnson (S T) Co
AEROPEL—American Blower Corp
AEROVANE—Tuttle & Bailey Inc
AETNA—Eagle Lock Co

**AETNA-Samson Cordage Works** AETNAPLY Actna Plywood & Veneer Co AFFCO American Foundry & Furnace Co AGATITE-Certain-teed Products

Corp
AGITAIR—Air Devices Inc
AGM—American Gas Machine Co
AGRICO—American Agricultural Chemical

AGWI-American Radiator & Standard Sanitary Corp

AIRACOUSTIC-Johns-Manville

AIRCRETE—Sullivan Co AIR-DRYETTE JR—Solvay Sales Div Allied Chemical & Dye Corp

AIRFLOW-Inland Steel Products

AIRFLOW—INNA

Go

AIRFOIL—Accessent Fan Co

AIRFOIL—Exams Products Co

AIRFOIL—Exams Products Co

AIRFOIL—Exams Products Co

AIRFOIL—Faxans Products Co

AIRFOILE—Faxans Products Co

AIRFOILE FINNED RADIATION—Radiant—
Ray Radiation Ince

AIRFOILE S-Swartsout Co

AIRFOILE S-Swartsout Co

AIRFOILE S-Swartsout Co

AIRFOILE CO

AIRFO

Regulator Co AIRTITE—Inland Steel Products

AIRTROL—Bell & Gossett Co AIR-TURN—Barber-Colman Co AIR-VENT-Ruberoid Co AIR WAVE-Trade-Wind Motor-

fans Inc AIRWAY - Firectaft Corp AIRWAY - Firectaft Corp AJAX - Case Crane & Kilbourne Jacobs Co AIAY - Sherwin-Williams Co

AKOUSTIKOS-Johns-Manville COFP ALABAMA "FOUR-A-QUALITY"—Alabama Metal Lath Co

ALABAX -- Pass & Seymour Inc ALACROME-Macklanburg-Dun-

ALBRON—Aluminum Co of America
ALCHEMIK—Truscon Laboratories Div Devoe
& Baynolds Inc
ALCIAD—Aluminum Co of America
ALCOA—Aluminum Co of America

ALDEN-American Radiator & Standard Sanitary Corp ALDURA-New York Wire Cleth Co

ALGOMA-U S Plywood Corp ALGONITE-U S Plywood Corp

ALINO—Clay City Pipe Co
ALKABAR—Truscon Laboratories Div Devoe
& Baynolds Inc
ALKAUTE—Protective Coating Inc
ALLAN—Wood (John) Mrg Co Inc
ALLAGHENY METAL—Allegheny Ludlum ALLERTON-American Radiator &

Standard Sanitary Corp ALLIANCE WARE-Alliance Ware ALLIGATOR-Allith-Prouty Inc.

ALLTITE—Coast Insulating Products
ALLVENT—Autovent Fan & Blower Div ALLWEATHER-Flintkote Co.

ALPINA-Inland Steel Products

ALTICO-Alloy Tile Corporation ALUMAROLL-Aluminum Awning Co Div Orchard Brothers Inc

ALUMINOX—Central Paint & Varnish Works
ALUMINUM STRIPE—Keystone

**ALUMINUM TOP—Keystone Steel** & Wire Co

ALIMINWELD—Lincoln Electric Co ALIMI-ROOF—Sheffield Bronze Paint Cor ALIMI-SHIELD—Metal Tile Products Inc ALIMITILE—Metal Tile Products Inc

Steel & Wire Co

ALUMNI-DROME—Reynolds Met-

ALUMOGRIT-Wooster Products Armour & Co
PUTTY—King (E & F) & Co Inc
TE Aluminum Window Corn

AMBLEROID—Keasbey & Mattison

GO
AMBROCIDE—Chapman Chemical Co
AMERICAN—Hotstream Heater Co
AMERICAN HOME—Mosker Brothers
AMERICAN RENTAL—American Floor Surfacing Machine Co AMERICAN STANDARD—American Radiator & Standard Sanitary

Corp AMEROCK—American Hardware Corp

AMWELD-American Welding &

Mfg Go American Brass Co ANCHOR-Barrett Allied Chemical & Dye Gorp ANGHOR—Besser Mfg Go ANGHOR—Celotex Corp

ANCHOR - Lufhin Rule Co ANCHORAIRE - Anchor Div Stratton & Terstegge Co ANCHORFAST-Independent Nail & Packing Co ANCHORITE Dickson Weatherproof Nail Co ANCO Anthony Truck Co ANCOVER Ageint Corp.

ANDAL—Fawsco Mfg Div Falls Stamping & Welding Co ANDERSON-Westinghouse Elec-

tric Corp Sturtevant Div GLEFLOW—Fairbanks Morse & Co GOLOP—Pabeo Products Inc HYDROSOL—Toch Brothers 19 BROWNSKIN GRIZZLYBEAR—Angler

Corp ANKRAFT - Angler Corp ANTHONY-American Steel & Wire Co

ANTI SLIP—Sullivan Co ANTOXIDE—Du Pont (E I) de Nemours & Co ANYSTREAM Speakman Co ANYSTREAM Lumber Corp A-1-Cabet (Samuel) Inc.

List of Manufacturers' Names With Complete Addresses Starts on Page D-76 APAC-Keashey & Mattison Co AGUADAM Johns-Manville Corp AQUAPEL-Zenolite Co AQUATHERM-Little (H C) Burner Ce inc AQULUX-Johnson (ST) Co ARCH BEAD—Intand Steel Prod-ARCHITECT-Bird & Son Inc ARCO—American Radiator Standard Sanitary Gorp ARCOFLAME-American Radiator & Standard Sanitary Corp ARDEN-U S Gypsum Co ARDMORE-Wood (John) Mfg Co Inc ARGOTILE-Flintkote Co ARIDCLEAR—Anti-Hydro Waterproofing (
ARIDIZE—U S Gypsum Co
ARIDTITE—Anti-Hydro Waterproofing Co
ARIN ACCELERANT—Arex Co ARISTO-BRIG-Rubereid Co ARISTOCATO— ABBREVIA ARLINGTON—American Radiator & Standard Sanitary Corp ARLINGTON SQUARE—American Radiator & Standard Sanitary Corp ARLON—Armstrong Cork Co ARMOLITE-Bird & Son Inc ARMORPLY-US Plywood Corp ARMSTRONG-STEDMAN-Armstrong Gerk Co ARRESTONE—Armstrong Cork Co ARROW-Keystone Steel & Wire Co ARROW GAS-Dowagiae Steel Furnace Co ART BRIC-Bird & Son Inc ART EDGE—Bird & Son Inc ART IN IRON—Arteraft Orna-mental Iron Co ARTISAN—Lufkin Bule Co ARTILAC—Devoe & Exposids Ioc ART-PLY-Vancouver Plywood & Veneer Co ART-ROC—Truscon Laboratories Div Devoe & ASBESTILE—Johns-Manville Corp ASBESTOCEL-Johns-Manville ASBESTO-LITE-Kay-Tite Co ASEPTICOTE—Truscon Laboratories Div Deroe
& Raynolds Inc
ASPHALIC—Plastergen Wall Board Co
ASOU—Carey (Philip) Mig Co
ATLANTIC BREEZE—Pryne & Co Inc ATLAS - Irvington Form & Tonk Corp. ATLAS-Universal Atlas Coment ATTICVANE-Westinghouse Electric Corp Sturtevant Div A-12-Armstrong Cork Co AUTOCOAL-Crane Company AUT-0-DOOR - Richards-Wilcox Mfg Co AUTO-LOK—Ludman Corp TO MAGIC—Ther Corp TOSONIC—Verdo Company TO-THERM—Hook & Ackerman Inc TO-WEIGHT—Buffulu Scale & Mfg Co Inc W"-Alan Wood Steel Co AY\_Aldrich Co.

AXIFLO-Westinghouse Electric COTP AYR-TRAP—Horn (A C) Co Inc AZPHLEX—Usulde Rock Asphalt Co AZROCK—Usulde Rock Asphalt Co AZTEX—Sullivas Co

BADGER—U S Gypsum Co BAFFLE MIX—Walsh Refractories Corp BAILEY—Stanley Works BAKER PERFECT—American Steel & Wire Co BALL-O-MATIC -- Reynolds-Shaffer Co

BALSAM-WOOL-Wood Conver-BANKHEAT-Johnson (S T) Co BANNER-Tennessee Coal Iron & Bailroad Co -National Mertar & Supply

BANZAI-Pittsburgh Plate Glass ARBECART—Donley Bros BARCOL-Barber-Colman Co.

BARNHIDE—Pittsburgh Plate Glass Co Raynolds Inc BARRELED SUNLIGHT-U S Outta Percha

BARRETT-HOLT-Barrett Div Allied Chemical & Dye Corp RY-Dick (R & J) Co In RUST-Devos & Raynolds X-Wheeling Corrugating

BASEAL—Servicised Products Corp BASOLIT-Nukem Products Corp .
BAUGHMAN HI-SPEED-Baughman Mfg Co BOARD

BEAU-FORT-Toledo Plate & TYCRAFT-Miller Metal Pro BEAUTY QUEEN-Toledo Desk & Fixture Co -Barland Weatherstrip Ma-

BEAUTY WARE-Briggs Mfg Co **BEAVER—Certain-teed Products** 

BEAVER-Samson Cordage Works BECKMAN-DAWSON-Flintkete Co BED ROCK—Stanley Works
DEE GEE—Brown-Graves Co
BEEHIVE BRAND—Cabot (Samuel) Inc

Vita-Var Co -Keasby & Mattison Co BELL-MINE—North American Cem BELLTITE—Nukem Products Corp BELT AIR—Buffalo Forge Co BEND-BOARD-Marsh Wall Prod-

ucts Inc Standard Stamping & Perforating Co
BEN FRANKLIN-U S Gypsum Co
BEN HUR-Mid-States Steel & Wire ( BERLOY—Berger Mfg Co Div Republic Steel Corp
BERMICO—Brown Company
BERMICO—Sargent & Co

BEST BROS—National Gypsum Co BESTWALL—Certain-teed Pred-

ucts Corp

ortwood M & M Woodworking Co STWOOD M & M Woodworking C TH-CU-LOY Bethlehem Steel Co TTENDORF Lennox Furnace Co VIL DEVIL Kimball Mfg Co Inc

B-G-Barber-Greene Co
B & G-Bell & Gossett Co B-H—Baldwin-Hill Co
BIFUREATOR—DeBotheast Famo Döv American Machine & Metals Inc
BIG CHIEF—Flintkete Co
BIG CHIEF KUTTER—Tri-States **Building Materials Co** 

**BIGMESH**—Inland Steel Products

BILDRITE—Insulite Div neseta & Ontario Paper Co BILT-WELL-Carr Adams & Col-

lier Co IRPAC—Birma Products ITUSEAL—Cheeseman-Elliot Co In BLACK ASPHALT-Carey (Philip) Mtg Co BLACK-BIRD-Samson Cordage Works BLACK DIAMOND-Barrett Div Allied Chemical & Dye Corp

BLACK LAP-Carey (Philip) Mfg BLACK MAGIC -- Miracle Adhesives Corp BLACK SHIELD—Barrett Div Al-lied Chemical & Dye Corp

BLACK TEMPERED PRESWOOD-Masonrile Corp

BLAZCRETE—Johns-Manville Corp BLOCKEDGE-Certain-tood Prod-

Masoery Rosin & Engineering Co
BLO-FAN—Pryne & Co Inc
BLO-POKE—Bennett-Ireland Inc
BLOWETTE—Lau Blower Co
BLOXOLITE—Hachmeister Inc

BLUE BAND-American Gypsum Div Celetex Corp

BLUE BRUTE-Worthington Pump & Machinery Corp BLUE-CENTER—Upson Co BLUE RAPIDS-Certain-teed Prod-

BLUE RIBBON-Keystone Steel & Wire Co UE RIBBON-Mid-States Steel & Wire

BLUE-RIDGE-Libbey-Owens-Ford Glass Co BLUE RIDGE HAMMERED-LIBby Owens-Ford Glass Co BLUE RIDGE LOUVREX—Libbey-Owens-Ford Glass Co

Corp
BLUF VALLEY—U S Gypsum Co
BLUF FLEX.—Millers Falls Co Cone Co
BUC-FLEX.—Millers Falls Co Cone Co
BON-CAT.—Libers Hoist & Crease Co
BONNAL.—Sealeon Products Inc
BONNCERFE—U S Gypsum Croof Co
BONNELTE—U S Gypsum Croof Co
BONNELTE—U S Gypsum (Villams Co
BONNELTE—Willow & Williams Co BONUS-BUILT-Ford Motor Co

BORED-IN-Sargent & Co BOR-IN-Lockwood Hardware Mfg Ce BOR-LOC-Lockwood Hardware Mfg Co BOSS-RIB-Bostwick Steel Lath

Ca BOSTWICK-Bostwick Steel Lath Co DYD Robinson Clay Product Co

BOYID—Redsinon Clay Product Co BOYIC—Chicago Posematic Tool Co BOYIC—Chicago Posematic Tool Co BEAN-FORD—Malleony—Tool Fittings Co BEAN-FORD—Malleony—Tool Fittings Co BEEFER AIR—Buffalo Forge Co BEEFER AIR—Buffalo Forge Co BREEZES—BASTER—Bar-Brook Mfg Co Inc BREEZES—MASTER—Acces Equipment Co BREEZES—Ballo Forge Co BRIC-ROLL-Flintkote Co BRIC-SIDE-Johns-Manville Corp

BRICSULATE-Carey (Philip) Mfg GO BRICK-LOCK-Standard Lime & Stone Co BRICK-MASTIC-Scabord Plastics Corp BRICK-MIX-Chicago Fire Brick Co BRICK-TEX-Certain-teed Pred-

UCTS COPY NET BAIL CONTROL CO BRICK-TOTER—MET BAIL CONTROL CO BRICK-METER—Bullors Material Inc BRIKSET—Chicago Fire Brick Co BRIKSET—Medusa Portland Ca-

ment Ca BRIK-STRIP-Rubereid Co. BRILLIANT-Caibar Paint & Var-BRILLIANT FIRE-Ohio Foundry

& Mfg Co List of Manufacturers' Names With

Complete Addresses Starts on Page D-76

BRINE-PRUF-Wilbur & Williams Co BRITE-LITE-Brainard Steel Co BRIXMENT-Louisville Cement Co BROAD SHADOW—Barrett Div Al-lied Chemical & Dye Corp BROILGASTER - Majestic Co

BROWN ELECTRONIK-Minneapolis-Honeywell Regulator Co E-60-General Controls Co B T U-Carey (Philip) Mfg Co BUCKEYE-Otio Hydrate & Supply Co BUCKSKIN-Plastergen Wall Board C BUCKSKIN READYBEND-Plastergen

BUDGET-American Radiator & Standard Sanitary Corp DGETAIRE—Plastergon Wall F FFALO-Kelley Island Lime port Co BUG-BLASTER Sherwin-Williams Co BUILDWARE-Frantz Mtg Co SULL DOG Wiss (J) & Sons Co SULLET-END Louden Machinery Co SU-PRO-FIRE Tennessee Enamel Mig Co BURKS-Decator Pump Co B-LA-MAT—Angier Corp B-LA-SKIN—Angier Corp RLITE—Bauer Mfg Co

BUT-N-TITE-St Paul Corrugating BUX-SKIN-Sullivan Co BUZABEL-Edwards Co Inc R & W-Babcock & Wilcox Co BX-Aldrich Co.

CABLE KING-Yale & Towns Mfg CABRANETTE-Murphy Door Bed

CALICEL-Celetex Corp GALISTONE—Celotex Corp CALKELASTIC - Pecora Faint Co CALK-O-PACK JB -- Seal Bite Caulking Co Inc CAMASTIC "B"—Cambridge Tile Mfg Co CAMBRITE—Cambridge Tile Mfg Co CANIEF-Masonite Corp

ANNON BALL Starling | ANYON Lurkin Rule Co CANYON—Lufkin Rule Co
CAPABOL—American Fluresit Co
CAPITOLAIRE—U S Radiator Corp
CAPITOL LINE—Hubery Brothern Inc
CAPITOL ENCK WOOL—Standard Lime
&

CARADCO-Carr Adams & Collier

CARBOSOTA—Barrett Div Allied Chemical & Dye Corp CAREX-C P 5—Carey (Philip) Mfg Co CAREYCEL-Carey (Philip) Mfg

CAREY COATING-Carey (Philip) CAREYDUCT-Carey (Philip) Mfg CAREYELAD-Carey (Philip) Mfg

CAREYLASTIC-Carey (Philip) Mfg Co CAREYSTONE—Carey (Philip)

Mfg Co CARLLOY—United States Steel Corp CARR-DOR—Carr Adams & Collier **CARRARA**—Pittsburgh Plate Glass

Coop CARSCOOP—Butler Bin Co CARSTENITE—Marsh Wall Products Inc CARTER—National Lead

CAS—Sinalkraft Co
CASPANE—Bandren Ca Chemical Div
CASCADE—Miami Cabinet D
Carey (Philip) Mig. Co
CASCANTE—Bandren Co Chemical Div
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CASCANTE—Benden Co Chemical Div
CASCOPHEN—Benden Co Chemical Div
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CATALYST-Borden Co CAULK-N-SEAL-Blue Bidge Tale Co Inc.

Varnish Co CAULATEX — Ever-Flastles Corp CAUXEAL — France Corp C-B — Clark-Rabbitt Industries Inc C-E-Co--Cheeseman-Eiliot Co Inc CECOTITE — Cheeseman Eiliot Co Inc CECOTITE — Cheeseman Eiliot Co Inc CECOTITE — Cheeseman Eiliot Co Inc

CEDARGRAIN-Johns-Manville CEDAR-LUX-Codar-Lux Products CEDARTEX THIKBUT-Flintkote

HAPPY DAY—Crane Electric Industries HEATMASTER—Combustion Engineer-Superheater Inc N.VENTOR Universal Blower Co CELLADOORS—Bilco Co CELLASTAIRS—Bilco Co CELL-U-BLANKET - Masonile

Cerp CELLUFOAM Masonite Corp CELO-BLOCK - Celetex Corp. CELOBRIC-Celetex Corp CELOCHROME—Celetex Corp CELOCRETE—Gelotex Corp

CELO-ROK-Celetex Corp CELO-SHINGLE—Celotex Corp CELO-SIDING—Celotex Corp CELO-TEXBRIK-Gelotex Corp C.E. LOW RAM—Combustion Engineering Superheater Inc CEMCOAT—Someborn (L) Som Inc CEMCOL—Termeo Mfg Co CEMCOL—Printsburgh Plate

Glass Co CEMESTO-Celotex Corp

EMSET Sullivan Co ENTRAZ Christy Co Inc . ENTURY Equipment Engineerin CENTURY-Keasbey & Mattison

CPACO-Central Paint & Varnish Works CRALITH-PRIMER SEALES-King (E

CERAMO-Carey (Philip) Mfg Co CERAMO Ohio Hydrate & Supply Co
CEROPHALT—Ceresit Waterproofing Corp
CEROFHALT—Ceresit Waterproofing Corp
CEROSEAL—Ceresit Waterproofing Corp
CEROSEAL—Ceresit Waterproofing Corp
CEROSEAL—Ceresit Waterproofing Corp
CERTIFIED BUILDING PRODUCTS—BuildBuild-Building Service

CERTIGRADE-Red Cedar Shingle Bureau CERTILE-Certain-teed Products Corp CERTROCK—Certain-teed Prod-

ucts Corp BEVELLY Communication of the Skrikly Communic Combustion Engineering Su-

CHAMPION-Grane Company CHAMPION Gunnison Homes Inc. CHAMPION-Vento Steel Products

CHANNELFORM-Bostwick Steel Lath Co.

CHAN-L-CROS-Junior-Pro Products Co CHECK-DRIP -- Dudgeon Distributing Co CHECKMATE -- Wilbur & Williams Co

CHEVRON-Barclay Mfg Co Inc Packard X Reardon Co AGO Eddy Stoker Corp AGO-WRIGLEY — Chicago

CHICKASAW-Memphis Hardwood Flooring

CHIC-MESH-Mid-States Steel & Wire Co

CHIG-MEST—REPAIRM
WIFE CO
CHICO REIRNET—Chicago Fire Brick Co
CHICO REIRNET—Chicago Fire Brick Co
CHIEF — Chicago Precision Machine Co
CHIEF — Peather-Lite Mig Co
CHIEF — M. Pleanant Heater Corp
CHIEL AIR—National Engineering & Mig Co
CHINNEY SWEET—Complain (G N)
CHIONDETTE III—Ebwards Co
CHIONATEY EVILLAYER CORP

CHROMEDGE—B & T Metals Co

CAULK-O-SEAL-Calbar Paint & CHROME-O-FLATE-Hitnels Bronne Powder CO Inc CHROMEROC—Barbond Products Co CHROMESMITH—Smith (E C) Mfg Co CHROMETEX—Borbond Products Co CHROMEWELD—Lincoln Electric Co CHROMSEAL-Pittsburgh

Glass Co CHROMTRIM-Werner (E D) Co Inc CHRONOTHERM-Minneapelis-Honeywell Regulator Co CHRYSLER-AIRTEMP—Airtemp

IRYSLER-AINTENDED OF Chrysler Corp CINCH—National Lead Co CINCINNATI—Marshalltown Trowel Co CINCO—Russell (F C) Co CIN-KOTE—Blue Ridge Tale Co Inc

IMCO — Russell (F C) Co
INKOTE—Bite Ridge Tale to Inc
INKOTE—Bite Ridge Tale to Inc
INKTI-ELBOW—Cincinnati Elbow Co
INKTI-ELBOW—Cincinnati Elbow Co
INKTI RAXI—Tennessee Enamel Mfg Co
INKTI RAXI—Tennessee Enamel E

GLETRAC-Oliver Corp Ciefrac CLIFFDALE—American Radiator & Standard Sanitary Corp

CLIFFTON—American Radiator & Standard Sanitary Corp CLIMATROL-Mueller (L J) Furnace Co

**CLINCHER**—Inland Steel Products TON-Wickwire Spencer Steel Dis-logado Fuel & Iron Corp

CLIPPER-Trade-Wind Motorfans CLOS-TITE-Carr Adams & Collier

Co OBEY-Perfection Steel Body Co. OBURN C F & I-Wickwire Spenser Steel

CM Chichelm Moore Hoist Corp CMENTO Sullivan Co Colorado Fuel & Iron Corp COLAS-Flintkote Co COLCAP-Carey (Philip) Mfg Co COLD-BAR-Calbar Paint & Varnish Co

-Commercial Shearing - & COLLOPAKES-Cabot (Samuel)

COLONIAL—American Cabinet
Hardware Corp
COLONIAL—Miami Cabinet Div Carey
(Philip) Mfg Co

COLONIAL TIMBERTEX-Ruberoid

Co-Lo-RA-Reardon Co
Co-Lo-RA-Reardon Co
Spencer Steel Div COLORADO — Wickwire Spencer Steel Div Colorado Fuel & Iron Corp COLOR-CONDITIONING — Du Pont (E 1) de

COLOR DYNAMICS-Pittsburgh Plate Glass Co Plate Glass Co
LOR-GRADED—Wheeler-Osgood Co
LOR-KOTE—Fir-Tex Insulating Board Co
LOR-RITE—U S Gypnum Co
LOR-TONE—Tamms Industries Inc

COLOR-TONED-National Brass COLOR TRIM-American Cabinet

Hardware Corp COL-PLY—Flintkote Co COLUMBIA-Pittsburgh Plate

Glass Co. COLUMBIA-Samson Cordage Works U S Min

COMASCO-Consolidated Machinery & Supply Co OMBUSTIONEER—Steel Products
gineering Co
OMBUSTIONEER—Reist Corn

COMET-Consolidated Machinery & Supply Co COMET CLIPPER—Consolidated
Machinery & Supply Co Ltd
COMET EXHAUSTAIR—New York Blower Co

COMFORTMASTER—Thatcher Furnace Co CO-MIN-CO—U 8 Mineral Wool Co COMMANDE—Commander Door Inc COMMANDER-Upson Co COMPASS—Goodyear Tire & Rubber Cr CONCO-HEAT-Conco Engineering

Works CONCRETE FORM PRESDWOOD-

Masonrite Corp
CONCREWALTUM - Vita-Var Corp
CONDOR - Barbeston-Manhattan Ine
CONSER-TEX - Barrell (William L) Co VADOR-Philes Co CONSERVOIL-Grane Company

CONTICO-Ruberoid Co CONVECTOR-Mueller (L J) Furnace Co NVERTIBLE—Berger Mfg Div Bopublic

Steel Corp.
COOKE—Mid-States Steel & Wire Co
COOLAIR—American Coolair Corp.
COOLERAIR—Payne Furnace Co

COOLITE-Pittsburgh Plate Glass COPPER ARMORED Sisalkraft Co COPPER CLIPT-Bird & Son Inc. OPPER-FABRIC—Wasco Flashing Co
OPPERSEAL—Wasco Flashing Co
OPPERSKIN—Angier Corp
OPPER-TREAT—Wood-Treating Chemicals

COPR-FIBRE—Forty-Eight Insulations Inc COP-R-LOY—Wheeling Steel Corp COPROX"-Coprox COP-R-TEX-Wasco Flashing Co CORD-0-BOY-Stain Shingle Div Weger-

CORKBOARD—Armstrong Cork Co CORKOUSTIC—Armstrong Cork Co CORLON-Armstrong Cork Co RNALATH-Alabam RNALATH-Metal CORNERITE-Truscen Steel Co CORONA DRY-Pittsburgh Plate

Glass Co R-O-PEL Con-Cor Paint Co ROSOFIL Tremen Mrs. Co. COROZONE-Coroaire Heater Corp CORPORAL-Certain-teed Prod-

ucts Gerp CORROSANTI—Schror (Adolph) Dr COR TEN—Tennessee Coal Iron & Railread Co Railread Co
ORTLAND Wickwire Brothers Inc
OUNTERFLO - Dravo Corp
OVER COAT - U 8 Gypsum Co
Orthograp Prejumatic Tool Co

CRA-California Redwood Assetion CRAFTCO-National Gypsum Co CRAFTCORD COVER-DRI-Flintkote Co

CRAFT-PAK-Masonite Corp CRAW-FIR-DOR-Fir Door Institute Ceresit Water

CREONOID-Barrett Allied Chemical & Dye Corp
RESCENT—Hanorer Wire Cloth Co
RESCENT—Keller Island Lime & Transport Co CRESCENT—Lufkin Rule Co CRESOLAC—Ceresit Waterprooft CREST—Day & Night Mfg Co CRESTO—Reardon Co ofing Co. CRESTO—Reardon Co CRESTOLOY—Crescent Tool Co CRETE-COLOR—Wilbur & Williams Co

Div

CROCUS-Samson Cordage Works CROWN—Ohio Can & Crown Co CROWNPLY—Georgia-Pacific Plywood & Lumber Co

Div Allied CRYSTAL—Barrett Chemical & Dye Corp CRYSTAL—Wurdack Chemical Co CRYSTALEX—Pittsburgh Plate

Glass Co Citation Co. CUSHIONTONE-Armstrong Cork CYCLONE-Chisholm-Moore Hoist Corp.

List of Manufacturers' Names With Complete Addresses Starts on Page D-76 CYCLONE—Ford Roofing Products Co CYCLONE—New England Carbide Tool Co CEC—Du Pont (E I) de Nemours & Co In

DAMPCOAT—Wilbur & Williams Co DAMPERTROL—Hotstram Heater Co DAMP VEXT-Wardlow & Jordan DA-MITE ACRATHERM—Minnea-polis-Honeywell Regulator Co DANTORE—Dant & Russell Inc 18894—Toulengt Core DASCO-Damascus Steel Products Corp
DAVIS & WELLS-Gonselidated

Machinery & Supply Ce -STEEL-Dayton Rubber Co TON THOROBRED-Dayton Rubber C DECOBLEND-Flintkote Co DECO-PLY-Actna Plywood & Ve DECORALT-Flintkote Co DECORATIVE MICARTA-U S Ply-

-Cincinnati Sheet Metal DEEPSEAT—Bennett-Ireland Co DEFENDER—Keystone Steel &

Wire Co DEFENDER-Silent Glow Oil Burner Corp DEFLECT-O-LITE-Sullivan Co y Co

DEFLECTROL-Barber-Colman Co **DEIGN**—Westinghouse Electric -Rockwell Mfg Co Power

Teol Div DELTA MULTIPLEX-Rockwell Mfg Co Delta Power Teel Div DELUX—Insulite Div Minnesota & Ontario Paper Co **DELUXE**—American Cabinet

Hardware Corp ELUXE—Downglac Steel Furnace Co ELUXE—Evans Products Co ELUXE—Furley & Loctacher Mfg Co

DENSITE-Certain-tood Products

CONTINUE—American Chemical Paint Co EDENNIBLE—Heath & Milligan Mfg Co Dir Gildden Co ERAYCO—Devoc & Raynolds Inc ERAYTEX—Devoc & Raynolds Inc ERRY RED—Lowe Brothers Co EUOPAKE—Devoc & Raynolds Inc DEXTER-National Brass Co DEXTER-TUBULAR-National Brass Co

DFPA— Douglas Fir Plywood As-Sociation

[AL-SET—Kel Master Corp

"AMOND—Adams Co

DIAMOND-American Steel & Wire Co DIAMOND—Barrett Div Allied Chemical & Dye Corp DIAMOND—McDonald (A DIAMOND—U B Gypsum

DIFFUSEX-Libbey-Owens-Ford Class Co. DILLON-Stanley Works

DISPOSAL—General Electric Ce DISPOSAL—General Electric G DISPOS-O-MATIC—Williams Gap DIXE—Hosteram Heater Co DIXIE BELL—Hotstram Heater Co DIXIE BELL—Hotstram Heater Co DIXIE BTAR—Hotstram Heater Co DIXIE BTAR—Hotstram Heater Co DIXIE TAR—Hotstram Heater Co DIXIE TAR—Hotstram Heater Co DIXIE TAR—Hotstram Heater Co DIXIE TAR—HOTSTRAM TOOL CO DIXIE TAREAM TOOL CO DOMR—ASSE—American Grease Stick Co

DOOZIT-Bruce (E L) Ce **DORFAST**—American Cabinet Hardware Corp DOR-WAY-Richards-Wilcox Mfg

Co DUBLE CROWN-Georgia-Pacific Plywood & Lumber Co
DOUBLE DUTY—Breeze Corp Inc
DOUBLEX—Schalk Chemical Co
DOVRLOY—Reeves Steel & Mig
DOWFLAKE—Dow Chemical Co

DOWICIDE—Chapman Chemical Co
DOWICIDE—Chapman Chemical Co
DOWICIDE—Dow Chemical Co
DRAFTEDER—Penn Electric
Switch Co
DRAFTITE—Keasbey & Mattison Co PAFT-0-STAT—Hostream Heater Co

DRAGON-Richards-Wilcox Mfg

DRAINRITE-Continental Steel Corp. DRAMEX-Reardon Co DRAWTITE-Allith-Prouty Inc DREADNAUGHT-Clarke

DRI-BILT-Douglas Fir Plywood

DRIN-TITE—Horn (A C) Ce Inc DRIVE-IT—Powder Power Tool Corp DRIWAL—Glidden Ce DRYE—Weather Seal Co DRYEX—Lastion Power Corp. DRY KILN-Carey (Philip) Mfg

EX—American Fluresit Co LAPS—American Stained Shingle Co DUA-LAPS-American Stained Shingle DUAL GRIP-Grand Specialties Co-DUBBLSEAL-Masonite Corp

DUBL-COVERAGE—Ruberoid Co DUBLECOVERAGE—Ruberoid Co
DUBLECOTE—Barrett Div Allied
Chemical & Dye Cerp
DUBL-THIK—Upsen Co
DUCCO—Du Fort (8 1) de Nemours Co Inc
DCCT-BOARD—Sail Mountain Co
DCCT-BOARD—Sail Mountain Co
DCCT-BOARD-NEW — Badeler Hill Co
DCCT-BOARD—TO Post (8 1) de Nemours & Co
DULTE—Du Fost (8 1) de Nemours & Co
DUL-KOTE—Tonnessee Ceal Iren
& Ballend Co

& Railread Co LUX-Du Pont (E I) de Nemours & Co

Inc
DUMPVEYOR—Morrow Sales Co
DUMBRIK—Dunn (W E) Mfg Co
DUOCEEX—Horn (A C) Co Inc
DUO-FAST—Fastener Corp
DUO-FAST—Fastener Corp
DUO-FAST—Fittsburgh Plate Glass

SEAL-Farley & Loctacher Mfg Co **DUPLATE**—Pittsburgh Plate Glass

DUPLEX-Richkraft Co. DUPLEX—U 8 Gypnum Co DUPLEX—Upson Co DURA—Flintkote Co DURABILT—Auer Register Co DURA-BILT—Busch (A G) & Co Inc DURABOND—Penn Metal Co

DURABOND—Penn Metal Co DURACAL—U S Gypsum Co DURACLAD—Smith (A 0) Corp DURACLAY—Crane Company DURA-COTTA-Johns-Manville

DURALIN-National Brass Co DURALL—New York Wire Cloth

**DURAPLASTIC—Universal Atlas** Cement Ce
DURA-SEAL—International Chemical Co
DURA-SEAL—Zegers Inc

DURASITE—Wesco Waterpaints Inc DURATITE—Westo Products Co DURATEM—Tremco Mfg Co DURAWHITE—Ash Grove Lime & Portland Cement Co
DURHAMS—Durham (Donald) Co
DURIDINE—American Chemical Paint Co
DURITE—Borden Co Chemical Div

**DURITE**—Certain-teed Products

Corp
DIEMO-Selditts Paint & Varnish Co
DIEMO-RETE—American Flurest Co
DIEMOHT—American Flurest Co
DIEMOHT—American Flurest Co
DIEMOHT—American Flurest Co
DIEMOHT—American Flurest Co
DISO-Oble Hydrate & Supply Co
DIST-A-LAY—American Flurest Co
DUST-STOP—Owens-Corning

Fibergias Corp DUTCH BOY NO 1.—National Lead DUX-SULATION—Wilson (Grant) I DYE-CRETE—Wilson & Williams Co DYNO-MITE—Millers Falls Co

E

**EAGLE**—Samson Cordage Works EAGLE MINEBAL WOOL—Eagle-Picher EAGLE STAR—Eagle-Picher Co EAGLE SUPER—Eagle-Picher Co EAGLE SUPER "66"—Eagle-Picher Co EAGLE SIPERTEMP—Eagle-Picher Co EASI-SELL—Actna Plywood & Veneer C t & Supply Co EASON-Ruberoid Co. EASY-CURVE—Upsen Ce

EASY-LIFT-Wilson Foundry & Machine Co EASY-REST-Phenix Mfg Co EASY-SLIP-La Crosse Steel Boofing & Cor-

rugating Co
EASYVEYOR—Equipment Engineering Co
EBONOL—Sherwin-Williams Co
EBONY—Plasterpon Wall Board Co
E C CORD—Goodyear Tire & Bubber Co

**ECLIPSE**—Red Davil Tools ON-O-Sommer Metaleraft Corp

ECON-O-MATIC-Stanley Works ECONOMY—Arex Company
ECONOMY—Bird & Son Inc ECONOMY—Keystene Steel

-Kirk & Elum Mfg Co -Plastergon Wall Board Co ECONOMY—Plastergos Wall Board Co ECONOTOP—Ruberoid Co EDGEWORTH—Weester Products

EDHAM-Weyernaeuser Sales Co MANCO—Edwards Mfg Co DSON—O'Brien Corp. KO METAL SASH-PUTTY—King (E & F) & Co EFKO W

A Co inc

EFK WOOD SASH-FUTTY—King (E & F)

& Co inc

EFTRO—Fielcher Terry Co

EUTYTIAN—Tamms industries Inc

SO-FWA—Fitaghbons Boiler Co

ELECTO—Myers (F E) & Brother Co

ELECTO—Myers (F E) & Brother Co

ELASTIC—Kuhls (B B Fred)

ELASTIC-Caray (Philip) Mfg Co ELASTIGUM—Barrett Div Allied Chemical & Dye Gorp ELDORADO—U 8 Gyjaum Co ELECTRIC FURNACE—Chicago Fire Brick

ELECTRIC JANITOR-Minneapolis-Honeywell Regulator Co ELECTRIMMER Skilsaw Inc ELECTRO-Republic Steel Corp. ELECTRONIC SERVICEMAN-Mc-

Kee Door Co ECTRONIC TORNADO-Lincoln Electric **ELECTRUMITE**-Republic Steel

COPP

EPHANT—International Steel Wool Corp

EPHANT—Internation Co of America

LITE—Amer Register Co

LITE—TRU-PAK—Egry Bugister Co ELLWOOD-American Steel &

Wire Co ELSCO Electric Sprayit Co ELYSIAN Hoboken White Lead & Color Works Inc EMERALD Plastergon Wall Board Co

EMERSON JR-Emerson Electric Mfg Co EMPIRE—Caldwell Mfg Co ENAMELCLAD—Carey (Philip)

Mig Co
NAMELOID -- Sherwin-Williams Co
NAMELOID -- Sherwin-Williams Co
NIN-LORT -- Exchange Sawmills Sales Co
NIOWEST -- Swift & Co
NIOWESD -- Swift & Co
NOURANCE Glidden Co
NUCRANCE IMPERIAL -- Glidden Co -Republic Steel Corp RAYDO—Illinois Zinc Co REOUCT—Ehret Magnesis Mfg Co ESICO-Electric Soldering Iron Co Inc ES-NAIL-Elastic Stop Nut Corp

of America SCO—Exchange Sawmills Sales Co SO—Gilbert & Barker Mfg Co CHEDWOOD—Wheeler Osgood Co ETERNIT—Ruberoid Co

ETERNIUM-Barrett Div Allied Chemical & Dye Corp EUREKA—New York Wire Cioth

UNTON—Glidden Co EVANAIR—Evans Products Co EVENAIRE—Plastergen Wall Board Co EVENBEET—Sampsel Time Control Inc EVENBEET—Morthwest Metal Products Inc EVERBOND X-Bruce (E L) Co

EVERDUR-American Bruss Co EVERFAST-Barrett Div Allied Chemical & Dye Grep EVERJET—Barrett Div Allied Chemical & Dye Corp

EVERLASTIC—Barret Div Ailied Chemical & Dye Corp EVERLASTING-Stanley Tools Div Stanley Works g Producta Co

EVERLOX-Barrett Allied Chemical & Dye Corp & Supply Co EVER-STICK-Upson Co

RVERTITE—Ford Recting Products Co EVERTITE—Southern States Iron Recting EVERWEAR—Southern States Iron Recting EX-L-LITE—Republic Steel Corp EXPANSLIP—Bennett Ireland Co

EXT-DFPA.A-A-Douglas Fir Plywood Ass'n EXT-DFPA.A-B-Douglas Fir Ply-

wood Ass'n EXT-DFPA.Plyshield-Douglas Fir Plywood Ass'n EXT-DFPA. Utility—Douglas Fir Plywood Ass'n

EXT-DPFA, Sheathing-Douglas Fir Plywood Ass'n

EXT-DFPA. Concrete Ford

Douglas Fir Plywood Ass'n

EXTITE—Argier Corp.

EXTRA STRUNGTH—Robinson Clay Product.

EXTRATITE-Flintkete Co EXTRUDALITE—Libbey-Owens Ford Glass Co

E Z-Frantz Mfg Co E-Z-FLEX--American Cabinet Hardware Corp E-Z-GLAZE-Farler & Loctscher Mfg Co E'Z' ON'-Baltz (R N) & Co

E.Z.-ON—McVulty Brothers Co
E.Z-OVER—Louden Machinery Co
E.Z-OVER—Louden Machinery Co
E.Z ROLL—Sagineered Products Co
E.Z ROLL—Security Co
E.Z SWING:—Phenix Mfg Co
E.Z-UP—Boxch & Musser Co
EZ-WAY—Mianesota Wood Specialties Inc

ABCO—Fabricated Products Co ABBICOTE—Glidden Co ABULON—Pierce & Stevena Inc ACEWELD—Lincoln Electric Co FACTRI-FIT-Fir Door Institute FAN-GLO HEETAIRE-Markel

Electric Products Inc RLITE COMPREG Farley & Loctscher FARLITE UDSTRAKE MIG CO FARLIA-BOL-Farley & Loctscher Mig Co FARLIA-BOL-Farley & Loctscher Mig Co FARLO-VGNT-Farley & Loctscher Mig Co FARLO-VGNT-Woodville Lime Co FARMIA-WOOdville Lime Co FARMIA-WALL-Woodville CO FARMIA-

FASCO-Fasco Industries Inc FAULTLESS-Inland Steel Prod-

FEATHER-TOUCH-Elier Co FELTEX—Carey (Philip) Co FENESTRA—Fenestra Building

FERA-MAT - Abrasive Metals Co FEREM-Horn (A C) Co Inc FEREM-Horn (A C) Co Inc FERE FAX.—Horn (A C) Co Inc FERE FAX.—Horn (A C) Co Inc FEREMODED—Truscon Steel Co FEREMODED—Truscon Steel Co FERROLITH —Sonneborn (L) Sons Inc FERROMETAL —Milwaukee Stamping Co FERROTHERM — American Flangs & Mfg Co

FIBERGLAS - Owens-Corning-Fiberglas Gerp FIBERKOTE—National Mfg Gerp FIBERLIYE—Insulite Div Minnesota & Ontario Paper Co FIBEROCK—Carey (Philip) Mfg

FIBRE COATING-Carey (Philip) Mfg Co FIBRE-TILE-Upson Co

FIBREX--Flintkete Co FIFTY-FIFTY--Du Pont (E I) de Nemours #505 RED LEAD-King (E & F) & Co In

FILTERED AIRE-American Foundry & Fur-FIRE-CHEX-Carey (Philip) Mfg Ca

List of Manufacturers' Names With

Complete Addresses Starts on Page D-76

FIRECRETE-Johns-Manville Corp FIREDAIRE—Anderson Stove Co Inc FIRE DAIRE—Edwards Mfg Co FIRE GUARD—Poweless Mfg Corp FIRE-HEARTH—Fireline Stove & Furnace

Lining Co FIREITE—Johns-Manville Corp FIRELITE—Fireline Stove & Furnace

FIRE PILOT—Sampsel Time Control Inc FIRESTOP BESTWALL—Gertainteed Products Corp FIRE-TENDER-Holcomb & Hoke

FIRZITE—U S Plywood Corn FISSURESTONE-Celetex Corp. FIXIT-National Mtg Corp FLASHING-Carey (Philip)

FLASHTITE—Ruberoid Co ATPAK-Viking Mfg Corp AT-RITE-Sherwin-Williams Co FLAT TRANSITE-Johns-Manville

Carp FLAXOAP—Sherwin-Williams Co FLEETLITE—Floot of America Inc FLEXACHROME—Flintkate Co. FLEXALUM—Hunter Douglas Corp.

FLEXARC-Westinghouse Electric FLEXBOARD-Johns-Manville

Corp
FLEXGELL—Beleisx Corp
FLEXGLASS—U S Plywood Corp
FLEXI—Berger Mfg Div Republic Steel Corp
FLEXI—Berger (Samuel) Inc FLEXI-FLOR-R C A Rubber Co

FLEXI-GRIP—American Cabinet Hardware Corp FLEXIGUM—Barrett Div Allied

Chemical & Dye Corp FLEXMETL-U S Plywood Corp

FLEXSCREEN-Beenett-treland Inc FLEXSEAL-Pittsburgh Plate

Glass Co FLEXTOP—Carey (Philip) Mfg Co FLEXWOOD—U S Plyweed Corp FLINTBOARD—Flintkete Co

FLINTLOCK-Flintkote Co FLOATING-Stanley Works FLO-LAC—Sherwin-Williams Co FLOOR ENAMEL—Truscon Laboratories Div bence & Exposids Inc FLO-MATIC—Rubberset Co

FLOORMIX—Flintkote Co Co FLOORSET-Fliatkote Co. LOGESTONE... Tamms Industries Inc LOGE-VEYOR... Expids-Standard Co Inc LOECREX... Hern (A C) Co LOE-DYE... Truscon Laboratories Div Dev & Raynolds Inc tories Div Devoe

FLOR-EVER-Delaware Floor Preducts Inc. FLOREX-Libbey-Owens-Ford Glass Co FLORHIDE-Pittsburgh Plate

Glass Co OR LEVL FOST-Holmes Mfg Co of O FLO-WARM-Williamson Heater

Co.
La-wax-Sherwin-Williams Co.
LiR-DRY—American Fluresit Co.
LURE SEAL—American Fluresit Co.
LURETEX—American Fluresit Co.
LUREGUATH—American Fluresit Co.

FLUTEX-Libby-Owens Ford Glass Co FLUXRITE—National Lead Co FLUX-STIK—Lake Chemical Co

Mfg Co ORCE AIRE Victor Electric Products Inc ORD'S BLACK METAL Ford Roofing Prod srts Co FORD V NEER-Ford Roofing Products Co FORM-A-COTE-Forman-Ford & Co FORMANITE-Forman-Ford & Co

FORMDUX-Airtemp Div Chrysler Corp DRMFILM—Horn (A C) Co DRMFILM—Sullivan Co

Corp
FORMWILM-Horn (A C) Co
FORM SEALER—Sullivan Co
FORM SEALER—Sullivan Co
FORTFIELD—I Reported Co
FORTFIELD—I Reported Co
40 OUTSIDE WHITE—Un Pout (E I) de
Nommars & Go lett mais Co
FORS SEY—Wooster ENG—Glidden Co
4.—Alabama Metal Lath Co
4.—Alabama Metal Lath Co
4.—Alabama Metal Lath Co
4.—Outside Metal Lath Co
4.—Alabama Metal Lath Co
4.—Al ical & Dye Corp

FOUR POINT LINE—King (E & F) & Co Inc 4-SQUARE—Weverhaeuser Sales CO
FRI - Robinson Clay Product Co
FREE FLOW - Burt Mfg Co
FREEFLOTE - U S Gypsum Co
FREEFLOTE - U S Gypsum Co

FRENCH LOCK-Certain-teed Preducts Corp FRESH-AIRE—Bennett-Ireland Inc RESH AIR MAKER—Schwitzer-Cummins Co REWAL—U S Machine Corp FRICTEX—Sonnehorn (L) Sons Inc FRIGHDAIRE—Frigidaire Div General Motor

Corp.
FRIGID-COAT.—Wilbur & Williams Co
FRIGID-FLEECE.—Carney Co Inc
FULLER BRIKARIER.—Emilders Material Inc
FULLER BRIKARIER.—Emilders Co

FUNGISIDE-Pittsburgh Plate Glass Co FURLATH-Inland Steel Products

FURNACESTAT-Minneapolis-Honeywell Regulator Ce FYRO-GRILL—Price Fireplace Heater & Tank Corp FYRO-PLACE—Price Fireplace Heater & Tank Corp

GAL VA NITE-Ford Roofing Products GALVANNEALED-Keystone Steel & Wire Co GALVANNEALED-Mid-States Steel & Wire

Co GALVANUM — Vita-Var Corp GALVITE — Sherwin-Williams Co GALV O-ZINC COATING — Blue Bidge Talc

GARDBOARD—Flintkete Ce GARDENEER—Inland Steel Prod-

ANDERSON CO uets Co Sutlivan Co Sutlivan Waterbury Co G/C-General Controls Co

GEMCO-Moore (Goodloo E) Co GIANT—Barrett Div Allied Chem-ical & Dye Corp GIANT—Bird & Son Inc

GIANT-Breeze Corporations Inc -Mid-States Steel & Wire Co-Starline, Inc

GIANT RED DEVIL—Crescent Tool Co.
GIANT STRIP—Johns-Manville GOPP GIANT WEIGHT-Barrett Div Al-

lied Chemical & Dye Gorp GIBRALTAR-Pittsburgh Plate Glass Co

lilbert & Rarker Mfg Co GILSONOID-Flintkete Co GIMCO ROLLBAT-National Gyp-GIMCO SEALAL—National Gypsum

G-K Robioson Clar Product Corp GLASTRON—Wolverine Porcelain Enameling

GLASS-O-NET-Warp Brothers GLASTONE-Libbey-Owens-Ford Glass Co GLATEX-U S Gypsum Co GLAZECOAT-Johns-Manville

Corp 17E.O. SCREEN Sol-O-Lite Mfg Co -Soi-O Lite Mfg berwin Williams

GLIDE-AWAY—Steel Door Div. Stamping Products & Mfg Co GLIDDEN-American Steel & Wire

GLIDE-Frantz Mfg Co. GLIDEAWAY—Farley & Loetscher Mfg Co GLIDE-AWAY—Stamping Products

& Mfg Co GLIDE-UP—Rock Island Millwork Co GLI-DOR—Carr Adams & Collier GLIDSEAL—Glidden Co GLIDTITE—Glidden Co GLO—Alton Laboratories Inc

Globoard-Barclay Mfg Co GLO-FYR-Breeze Corporations Inc

GLOGAS-Superior Fireplace Co. GLORY—Inland Steel Products Go GNOME—Breeze Corporations Inc GOLD BAND—Pittsburgh Steel

Products Co **GOLD BOND**—National Gypsum Co GOLD BOND-GIMCO-National

GOLD BOND-GIMEQ — MATHERA GYBSUN GC GOLDEN ROLD Hanover Wire Cloth Dir Continental-United Industries Co Inc GOLDEN ROLD — Sargert Geries Co GOLD LAREL — Sargert Geries Co GOLD LAREL—Woodville Lime Co GOLD BRALL—Woodville Lime Co GOLD — Wickel Sargert Geries Species Steel Corp Strady—Wickeler Species Steel Corp Strady—Wickeler Species Steel

GOLD STRIPE-Pittsburgh Plate

COLD TIP—Fletcher Terry Co GOPHER—American Gas Machine Co GP & F.—Gudder Paeschie & Frey Co G-P PLYSHEET—Georgia-Pacific Plywood & mber Co X.—Georgia-Pacific Plywood & Lumber

Co GRACO Gray Company Inc

GRADE 1—Ferman-Ford & Co GRADE-U-FLOW—Minneapolis-Honeywell Regulator Co GRADUTROL-Minneapolis-Honeywell Regulator Co

GRAND PRIZE—U S Gypsum Co GRANITEX—Truscon Laboratories Div Deroe & Raynolds Inc GRAPH-A-MATIC-Remington

Rand Inc GRAYLITE-Insulite Div Minnesota & Ontario Paper Co

GRAYWICK—Wickwire Brothers Inc GREEN BOTTOM—Continental Steel Corr GREEN GOTTE—Green (A P) Fire Brick Co GREEN HANDLE—Fletcher Terry Co GREEN SEAL—U S Gypsum Co

GREEN TIP-Keystone Steel & Wire Co REVSTONE—American A Amhalt Boof Corn

GRILLADIER-Bennett-Ireland Inc. RIP-CUT-La Belle Industries Inc RIPIT-Sullivan Co RIPITE-Sommer Metaleraft Co GRIPTITE Sommer Metalcraft Corp GRIP-TOW Yale & Towns Mfg Co Phila-

**GUARD**—Certain-teed Products GUARDENE-Pyrene Mfg Ge GUARDIAN-Flintkete Co GUARDWELL-Copco Steel & Engineering Co

GUILD-Porter Cable Machine Ce GULFSTEEL-Republic Steel Corp

**GYPSTEEL—Certain-tond Products** 

HAKO-Hachmeister Inc HALLMARK Reardon Co HAMMER-SETS Rawlplug Co Inc HAMBTWIST Star Expansion Bolt Co

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HANDIBELT-Standard Conveyor Co chinery Sales Cos ANDIPILER—Standard Conveyor C ANDY—Meyer (F) & Brother Co ANDY FARMER—Johnson Industri

HANDY-HUT-United Steel Fabricators Inc HARBORD—Harbor Plywood Corp HARBORD PLYCRETE—Harbor

Plywood Co HARCURVE-Harbor Plywood Corp HARMOULD—Harber Plywood

Corp Starline Inc

HASKO-Haskelite Mfg Co HASKO ARCH-KOR—Haskelite Mfg Corp - Metal Tile Products Inc READ-Ohio Hydrate & Su

HAWTHORNE—Keystone Steel & Wire Co HEALTHHEAT-Norge Heat Div Borg-Warner Corp HEAT-A LITE—Hu-Tone Inc HEATEX—Marsh Wall Products

**HEATFORM**—Superior Fireplace

Co HEAT-PAK-Aldrich Co Div Breeze Corp Inc HEAT-PAK-Breeze Corporations inc

RITE—Auer Register Co ROLA—Estate Store Co Div Noma HEAT-BUTE HEATROLA HEATROLA—Esteor
Electric Co
Electric Co
ELECTRIC STRUCTURE
BEATS AVER—Donley Brothers
BEATS SEAL—Ehret Magnesia Mfg Co
BEATSTREM—Speco Inc
HEATVIDITY—Parker-Kalon Corp
H & C—Hart & Cooley Mfg Co

Market Electric P

HEETAIRE-Market Electric Products Inc STER HELLITE-Johns-Manville Corp

HERCULES-Richards Wilcox Mfg

HERCULES-Sargent & Co **HERCULES—Stanley Tools** HERCULITE-Pittsburgh Plate Glass Ce

HERRINGBONE-Truscon Steel Co HETTINGER'S TRIPLE SEAL Weatherproof Products Corp HEVI-LIFT-Warnischteger Corp HEX-CEL-American Steel & Wire

Co HEXTRALINE-American Steel &

Wire Co
-BOY - Blaw-Knox Div Blaw-Knox Co
-BOY - Blaw-Knox Div Blaw-Knox Co
-BOY - Blaw-Knox Breel Furnace Co
-BOY - Blam-Knox Breel & Co
-Secretary - Colored Co
- Colored Colored Colored Co
- Colored Colored Colored Col HIDALIFT-Turner & Seymour

Mfg Co HIDEE-DOR-Winner Industries HI-DEGREE-Cheeseman-Elliot Co Inc HIDE-N-SEAL-Sonneborn (L) Sons Inc HI-DUMP-Jaeger Machine Co HIGH STANDARD—Lowe HILCO—Bilger Co HILLIE—U S Grpsum Co

HILO-Frantz Mig Co HILO-Ohio Hydrate & Supply Co HI-LO-Wolfe Products Inc HILUSTRE-Plastergon Will Board Co HI-POWER-Portable Electric Tools Inc HINES SHELF-Hines (Edward) Lumbe HI-RIB Sequents Co.

HI-SPEED-Louisville Coment Co HI-STEEL-Inland Steel Products Co HI-TEST-Tamms Industries Inc

List of Manufacturers' Names With Complete Addresses Starts on Page D-76 HI-TEX-Muralo Co Inc HI-UP-Worthington Pump & Ma-

chinery Co
H1-WAY—Lufkin Bule Co
H0AL—American Sheet Metal Works
H0FFMAN—Clayton & Lambert Mfg Co
H0LD-ALL—O'Neil (Carl W) & Assoc HOLGUN-Black & Decker Mfg Co HOLORIB-Fenestra Building

Products HOLT-Barrett Div Allied Chemical & Dye Corp
httlTE—Continental Serew Co
httlTW000—Products Dir Colgate Mfg

HOLZON—Hers (A.C.) Co HOMLIME—Louisville Cement Co HOME-UTILITY-Black & Decker

Mfg Co HOPES—Hone's Windows Inc HORIZONTAL GLIDING-Anderses

Corp HORIZONTALINE—Marsh Wall Products Inc DRIZONTAL SLIDING-Farley & Loctscher

OBLIGOTAR DESCRIPTION OF THE DES

HOT BLAST-Carey (Philip) Mfg

BLAST—Cole Hot Blast Mfg Co HOUSEMART—Roddis Plywood Corp HOWLE—Condensation Engineering Corp

**HUMID-AIRE**—Meyer Furnace Co HUMID-U-STAT-Minneanelis-

Honeywell Regulator Co HURWOOD—Stanley Works HYDRALT-Flintkote Co HYDRAMOTOR-General Controls

HYDRATITE—Horn (A C) Co Inc HYDRAULIC-ACTION—White-Rodgers Electric Co HYDROCAL—U S Gypsum Co HYDROCAL—U S Gypsum Co HYDROCAL—U S Gypsum Co HYDRO-FLO-Bell & Gessett Co

HYDRONON-Barrett Div Allied Chemical & Dye Corp HYDROXIN-Kay-Tite Co

HY-DUTY—Schwitzer-Cummins Co HY-POWER—Wiss (J) & Sons Co HY-POWER—Wiss (J) & Sons Co HY-STAWAYS—Hyster Co HYTEMPITE—Quigley Co Inc

IDEAL-American Steel & Wire IDEAL-Tennessee Coal Iron &

IDEAL—Tennessee Cem Ifon a Raifroad Cem
Raifroad Cem
IDEAL—Hinds & Buach Paper Co
IDEAL—Hinds & File Co
IDEAC—Armon Steel (or
IDEAC—Armon Steel (or
IDEAC)—Armon Steel (or
IDEAC)—IDEAC CEM
IDEAC CE

IMCO-Red Devil Tools I-M FLUSH-United States Plywood Corp IMMERSATHERM-Mercold Corn

IMPERIAL—U S Gypsum Co IN-A-SLIDE—New Monarch Machine & Stamping Co

INCOR-Lone Star Coment Corp INDIAN—Bowagiac Steel Furnace Co INDOOR-OUTDOOR—White-Rodgers Electric

INDUSTREX-Libbey-Owens-Ford Glass Co

INERTOL-Carbolineum Wood Preserving Co INGACLAD-Ingernoll Steel Div Borg-Warner Corp -QUIK-Insulation & Refractories Co INSL-COTTON—Taylor Bedding Mfg Co INS-LITE—Insulite Div Minnesota

Ontario Paper Co INSO-COTE—Wilbur & Williams Co INSO-WITE—Tamms Industries Inc INSULAGE—Messer Brothers INSULAGE—Messer Brothers INSULAGE—Guigley Co Inc INSULAGE—Guigley Co Inc INSULAGE—Mortell (J W) Co INSULMESH-Truscon Steel Co.

INSULUX-American Structural Products Co INTERLOCK—Jones & Brown Inc INTEGRALOCKS—Sargent & Co INTERIOR. A-A-Douglas Fir Plywood Ass'n

INTERIOR. A-B-Douglas Fir Ply-INTERLOX—Extruded Plastics Inc INVIZIE—Grand Rapids Hardware Co INVIZIELE—Grand Rapids Hardware PIX—Jolk Plywood Co BON-COTE—Sulliss—

IRONHIDE-Pittsburgh Plate Glass Co

IRONIZED—Sullivan Co IRON-MIX—Tamms Industries Inc IRONSET—Fireline Stove & Furnace Lining IBONTILE—Adel Clay Products Co ISO-DRAULIC—Perfection Steel Rody Co IVOROID-Pittsburgh Plate Glass

Co IVORY-U S Gypsum Co

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JACK FROST-Barrett Div Allied Chemical & Dye Corp JANITROL-Surface Combustion Corp P-A-LAC—Glidden Co Clidden Co

JAY-BOARD—Barclay Mfg Co JAY-PANELBOARD—Barclay Mfg & C.—Jackson & Church Co & C.—Jackson & Church Co ECT-0-VALVE.—Swartwout Co Willies-Overland Motor s Inc

JECT-0-VALVE—Swartwout Co JEEPS—Willys-Overland Motors JETBLAK—Rubereid Go JETCRETE-Construction Machin-

ory Sales Co
JFS-Stephen-Adamson Mfg Co
JFSE-Otles-Hotstream Heater Co
JIFFY-Carbon (A B) 4 Cc
JIFFY-Grand Haven Stamped Products Co JIFFY-Parker-Kalon Corp JK-Knights (James) Co

J-M-Johns-Manville Corp -Aldrich Co JUMBO-Breeze Corp Inc

JUMBO---U S Gypsum Co JUNE-AIRE---American Foundry & Furnace Co JUNIATA-Diener (George W) Mfg Co JUNIOR-West Wind Corp JUNIOR BATS-U S Gypsum Co

KAL-U S Gypsum Co KALITE-Certain-teed Products Corp. KALKOMO-Pittsburgh Plate

Glass Co
KALSO-LITE—Tamus Industries Inc
KAL-WOOD—Keller Products Inc
KANT-KBUSH—Grand Rapids Wire Products Co ANT-LEAK—Sullivan Co

KAPCO—Resistant Aspiral From Inc ARRI-GO—Silent Hoist & Crane Co ARRY KRANE—Hyster Co ASSON—General Die & Stamping Co KATHABAR-Surface Combustion

Corp
KAUKIT—Sonneborn (L) Sons In
KAUKIT—Sonneborn (L) Sons In
KAYIO—Owens-Illinois Glass Co I
KAYO—Tamms Industries Inc
KCB—Semport Steet Corp
K-CEMO—U S Grpoum Co
KCM-GLO—Sherwin Williams Co
KEMI-KAL—Sherwin Williams Co
KEMI-KAL—Sherwin Williams Co

KEMILIME-Ash Grove Lime & Portland KUTTO-Modern Specialties Mfg Co KEM-NAMEL-Sherwin-Williams Co KEM-NAMEL—Sherwin-Williams C KEM-TOVE—Sherwin-Williams C KENCORK—Sherwin-Unvided KEN CORNER—Singer Kennedy

KENMORE-Certain-teed Products KENNATRACK-McKenna (Jay 6)

lane. KENWOOD-American Radiator & Standard Sanitary Corp

KEYCHWORK—Plastic Molded Product
KEYMESH—Keystone Steel Wire Co KEY'N KNOB-Lockwood Hard-

ware Mfg Co KEYSTONE-Crane Company KICKAPOO-Keystone Steel

KIF-Ruffalo Products Inc KILNOISE-Kelley Island Lime & Transport Co KIMPREG-Kimberly-Clark Corp. KIMSUL-Kimberly-Clark Corp KING HOUSE PAINT LINE-King (E & F) Inc LAZING COMPOUND—King (E & F) & Co Inc KING METAL COAT LINE-King (E & F)

& Co Inc KING STRUCTURAL COATS-FRing (E & F) & Co Inc

KINTRIM—Kinkead Industries Inc
KINTRIM—Concrete Transport Mixer Co
KITCHERAIDER—Mullins Mfg

Corp KITCHEN-AIRE-Stewart Mfg Co KITCHEN-PROVED-Westinghouse Electric Corp

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KLENGON-Cabot (Samuel) Inc KLING-TITE—Sullivan Co KLIP-LOK—Globe Siding Products Co KLIXON—Spencer Thermostat Div Metals & Controls Corp. KLOVER KROP—Woodville Lime Co

& Controls Corp.
KLOVER KROP—Woodsille Lime Co
K & M—Keasbey & Mattison Co
KNICKERBOCKER—Flintkote Co KNIGHT TRIPLE—Barland Material Co KNOBURN—U S Gypsum Co KNOXALL—Starline Inc

KO-A-AIRE Jones & Brown Inc KOKOMO KORNERS-Bugher Mrg Co KOKOMO KORNERS-Bugher Mrg Co KOKOTE-Continental March Mrg Co

KOLECT-A-MATIC-Remington Rand Inc KOLOR FINS-Independent Nail & Packing

Tamms Industrie KOLOR-TRIM-Wood Conversion KOMIX—Sullivan Co

KONICAL-Inland Steel Products ONIK—Continental Steel Corp.
NNKETE KORE—Tilden Tool Mfg Co.
NNSEAL—Sullivan Co.

illivan Co
—U S Air Conditioning Corp
—Ingersoli Steel Div Borges Co Inc. KOPRO-C-P-15-Garey (Philip) Mfg Co

KORDUCT-Johns-Manville Corp KORINA-U S Plywood Corp KORK-PAK-Servicised Products

Corp GROSEAL-Goodrich (BF) Co KOROSEAL—Sloane-Blabon Corp KOROSEAL—Sloane-Blabon Corp KRAFTWOOD—M & M Woodworking Co KRAK-STIK—Lake Chemical Co KRANE KAR—Silent Hoist & Crane Co KRESNO-Kresne Stamm Mfg

Corp KROMIK—Sherwin-Williams Co K-SEAL—Morgan Co K S V—Kerneben Co

KUVER-KRAK-Upson Co K-VENIENCE—Knape & Vogt Mfg Co KWIKEEZE—Savagran Co KWIK-WAY—Eart & Cooley Mfg Co KYANIZE—Boston Varuish: Co

LACTILE-Carey (Philip) Mfg Co

LAMINO-Keasbey & Mattison Co AMNEIK—Clayton & Lambert Mfg Co ANNTONE—Globe Roofing Products Co APIDOLITH—Somehorn (L) Sons Inc APIDOLITH—Somehorn (L) Sons Inc AP LoK—Retinson Clay Product Co AP-TITE—Letion Co ARCO—Western Mineral Products Co ARCO—Western Mineral Products Co ARCO—Western Mineral Products Co

LASTILE-Carey (Philip) Mfg Co LAUNDRETTE-Crane Co -Monsanto Chemical Co FUNGISEAL-Monsanto Chemical Co GLUE-Monsanto Chemical Co

LAVANET-Teledo Desk & Fixture LAYTITE-Conner Lumber & Land

L-BLOW-Trade-Wind Meterfans EADER—Lufkin Rule Co EAD-HEAD-NAILS—Mage (W H) Co EAD-SEAL—Deniston Co

LEADTEX—Revere Copper & Brass Inc
LEATHERBACK—Protective Pa-LEATHERWOOD-Masonite Corp. LEGO LATCH-Laboratory Equip-

ment Corp LECTRO-GLO-Day & Night Mrg Co LEIGH-Air Control Products Inc LEMCO-Craft Steel Products Inc LEPTYNE-Pittsburgh Plate Glass

US LESLIE LOUVERS—Leslie Welding Co LEVELOR—Dence & Raynolds Inc LEVEL-TEMP—White-Rogers Electric Co LEV-L-FLOR—Central Paint & Varnish L & 1 LECTO-HOST-Lindemann (A J) &

Hoverson Co
Liberty—Day & Night Mfg Co
Liberty—Dovagiac Steel Furnace Co
Liberty—New York Wire Cleth

LIFE-LINE-Westinghouse Electric Corp LIFETIME-Bennett-Ireland Inc

LIFETIME-Reynolds Metals Co LIFT-O-KRANE-Silent Hoist & Crane Co LIGHT DUTY--Goodrich (B F) Co LIGHT HOUSE--Kelley Island Lime & Trans-

LIGHTNING-Pittsburgh Plate Glass Co. LIGHTNING JOINT-Johns-Manville Corp LIGHT-SAVER—Fawsco Mfg Div

Falls Stamping & Welding Co GHTWELD-Lincoln Electric Co GNOPHOL-Sunneborn (L) Sons Inc LIGHTWELD—Lineoin Electric Co LIGNOVIED——consoleron (L) Sons Inc LIGNOVIED——consoleron (L) Sons Inc "ILL-AD"—Lilly (Bard) Co LIMELITE—Oito Hydrate & Supply Co LIMELITE—Oito Hydrate & Supply Co LIMELITE—With Interioral Comput Corp LIMELT—Keasbey & Mattison Co LINABESTOS-Keasbey & Matti-

INCO-Linden Mfg Co INCO-Linden Mfg Co INCOLNWELD-Lincoln Electric INCWELDER-Lincoln Electric

LINEAWAY.—Fawsco Mfg Div Falls Stamping & Welding Co LINE-O-FLO-Barber-Colman Co LINOTILE-Armstrong Cork Co 

LITTLE AMERICAN-American Floor Surfacing Machine Co

List of Manufacturers' Names With Complete Addresses Starts on Page D-76 LOAD KING-Yale & Towns Mfg

Co LOAD-N-GATE—Hercules Steel Products Corp LO-BIN—Johnson (C S) Co LO-BOY—Whiting Corp LOCKAIRE—Plasterpon Wallboard Co

LOCKE—Locke Mfg Co LOCK-JOINT—Inland Steel Products Co LOCKWOOD—Lockwood ware Mfg Co LOC-NAILS—E G Building Fasteners Corp L-O-F—Libbey-Owens-Ford Glass Ce

LO-HED—American Engineering Co LO-HIBOY—Century Engineering Corp LO-K—Lockport Cotton Batting

LOK'D BAR—Hope's Windows Inc LOK-JOINT—Insulite Div Minneseta & Ontario Paper Co LOK-TITE-Carr Adams & Collier Ce

LOMAINTENANCE-Allis-Chalmers Mfg Ca

OTT-American Steel & Wire Co LOUVREX-Libbey-Owens-Ford Glass Co LOW-CHARGE-Jaeger Machine

LOWDENSITE-Insulite Div Minnesota & Ontario Paper Co

NSEAM—Edwards Mfg Co 2—Arnesto Paint Co Inc DLITE—Allegheny Ludium Steel Corp MARITH—Celanese Corp of Ame LUMARITH—Celanese Corp of America Plastics Div LUMAPANE—Celanese Corp of America Plastics Div LUMBER-BUGGY—Nutting Truck & Caster

Co ME-TEX—Truscon Laboratories MICALD—Abesto Mfg Corp LUMINEX-Libbey-Owens-Ford Glass Co

LUMINOUS VORTEX—Iron Pireman Mfg Co-LUMINOUS VORTEX—Iron Pireman Mfg Co-LUMI-SHADE—Thabet Mfg Co-LUMITALL—National Mfg Corp LUMITE-Lumite Div Mfg Corp of Ga Chicopee

LUMNITE-Universal Atlas Cement Co LUPTON—Flynn (Michael) Mfg Co LUSTERTILE-Celotex Corp

USTRAGLASS American Window Glass Co 'STRALUMIN'—Blue Bldge Talc Co Inc 'STRAWHITE—American Window Glass Co 'STRE-SEAL—Chapman Chemical Co 'STRO-WARE—Columbus Plastic Products LUX-AIR-Wolfe Products Inc LUX-RIGHT—St Paul Corrugating

Co LYMAN-American Steel & Wire Co LYONORE-Lyon-Conklin & Co Inc

MACHETA—Aerovent Fan Co MACGUSTIC—National Gypsum Co MAGIC CIRCLE—Hotpoint Inc MAGIC-DOOR-Stanley Works MAGNE-FILTER-American Radiator & Standard Sanitary Corp

AGNOLIA—Paritan Cordage Mills AMBONING—U S Gypsum Co MAINTENEX—Horn (A C) Co Inc MAINTENEX—Horn (A C) Co Inc MAINTENEX—Plastergon Malboard GANGAWELD—Lincoln Electric Co

MANHATTAN-Pittsburgh Plate Glass Co [ARCO - Marschke Co [ARKAL -- Lake Chem

MARKWA-Vermont Marble Co
MARLITE-Marsh Wall Products MARLITE DELUXE-Marsh Wall Products Inc

MARLITE MARBEL PATTERNS. Marsh Wall Products Inc MARLITE VELVETEX—Marsh Wall Products Inc

MARLITE WOOD PATTERNS-Marsh Wall Products Inc

MARVEL-LIFT-Crawford Door

ELWITE-Sanneborn (L) Sons Inc MANU-Reardon Co MASCO-Munn & Steele Inc MASCOBOND-Munn & Steele Inc MASCOKAST-Munn & Steele Inc MASCOKAST-Munn & Steele Inc MASCOKETE-Munn & STEELE INC

MASTER-American Cabinet Hardware Corp MASTER-Master Woodworker Mfg Co

MASTER-San Equip Inc
MASTER-BILT-Bird & Son Inc MASTER-CAULK-Calbar Paint & Varnish Co

MASTERCRAFT Harrey Whipple Inc. MASTER FRAME-Anderson Corp MASTERIB Poen Metal Co Inc MASTER-LAC O'Erien Corp MASTER-LOCK-Bird & Son Inc MASTER PAVE-Bird & Son Inc

MASTER SECURITY—Kewanee MIT COMMANTER STOKERS — Muncie Gear Commanter Board — Keystone Asphalt Products

CO MASTICRETE—Glidden Co MATCHMATE—Seidlitz Paint & Varnish Co MA-TI-CO—Mastic Tile Corp of America

thio Hydrate & Supply Co MAXAW-Cummins Portable Tools Div Cummins Chicago Corp

MAYFAIR-American Radiator & Standard Sanitary Corp MAYFAIR GREEN-U S Gyps MAYN AIR—Henry Furnace MAZE—Barrett (William L)

MAZEX-Libbey-Owens-Ford Glass Co. CDONALDAIRE-McDonald (A Y) Mfg Co

MEDCO-Medusa Portland Cement

ELLO-GLOSS—Lowe Brothers Co MENGELBORD-Mengel Co MERCUEY—Vulcan Electric Co MERIUN—Wood (John) Mfg Co Inc MERTLAND—Hedges (M M) Co MESHTEX—Penn Metal Co MESHEEX—Penn Metal Co MESKEROTOR—Mesker Brothers METALANE—Monarch Metal Weatherstrip

COMETALASTIC—Sherwin-Williams ComETALBESTOS—Williams-Wallace ComETALCOTE—Lowe Brothers ComETALEAF—Pittsburgh Plate

Glass Co
METAL-FIX—Sheffield Bronne Faint Corp.
METALITE—Thorn (J S) Co
METALLATION—Reynolds Metals

Co Inc
ETAILITE—Glidden Co
ETAILMASTER—Wiss (J) & Sons Co
ETAILMASTER—Wiss (J) & Sons Co
ETAILMACON Horn (A C) Co

METAPHRAM—Minneapolis-Honeywell Regulator Co METEOR - Chisholm Moore Hoist Corp METLWAL - Martin-Parry Corp

METROTHERM-General Controls MEXKO Green (A P) Fire Brick Co

MEX-R-CO-Mexico Refractories Co-MEYCO-Meyer Furnace Co -Minneapolis-Honeywell Rogwiator Co MIAMI - Industrial Machine Tool Co Inc Window Div

MICA-KOTE-Carey (Philip) Mfg

MICARTA-Westinghouse Electric

Corp

MICHIGAN—Lafkin Rule Co

MICKLIN—Dennis (W.J) & Co

MIGROTHERM—Barber-Colman Co

MIGROTROL—Barber-Colman Co MIDGET KING—Yale & Towns Mfg Co MIGHTY MIDGET-Downgiae Steel Furnace

MIGHTY MIDGET UNISHEAR-Stanley Works
MILCOR—Inland Steel Products

MIL-FLOOR-Celotex Corp MILLION-MILER-GMC Truck & Coach Div General Motors Corp MILO-Mengel Co MILWAUKEE—Smith (A 0) Corp MIMAX—Pittsburgh Plate Glass

Co MINALITH-American Lumber & Treating

MINARET TIP-American Cabinet Hardware Corp MINERAL WOOL BOARD-Armstrong Cork Co

MINI-MESH-Penn Metal Co Inc MINNEMEYER-La Crosse Steel Booking &

MIRACHROM—8 & W Molding Co MIRACLE WALLS—Tylac Co MIRACULA—Chernal Engineering & Mfg Ce MIRACULA—Chernal Engineering & Mfg Ce MIRACH—Musphers Mg Co MIRACH—Musphers Mg Co MIRACH—Musphers Mg Co MIRACHAS—S & W Moulding Co MIRACTERIM—S & W Moulding Co MIRACULA—S W Moulding Co MIRACULA—S W Moulding Co MIRACULA—S W Moulding Co

forating Co
MIRROLAC—Devoe & Raynolds Inc
MISSOURI FLINT—Chicago Fire MITERTITE—Curtis Cos Inc MOBILAIRE—Westinghouse Elec-

tric Corp DDERNAIRE-National Gas Equipment Co

-Parne Furnace Co HOMES-Lumber Engineering Co MODERNFOLD—New Castle Products Co

MODEX—Reardon Co MODUFLOW—Minneapolis-Honeywell Regulator Co MODUTROL-Minneapolis-Honeywell Regulator Co MOE LIGHT—Moe Brothers Mfg Co MOHAWK—American Radiator &

Standard Sanitary Corp NARCH—American Saw Mill Machinery Co NARCH—Forest City Foundries Co NARCH—Grand Specialties Co

MONARCH—Grand Specialties Co MONARCH—Keystone Steel Wire Co MONARCH—Malleable Iron Range Co MONARCH—New Monarch chine & Stamping Co

IONARUH—Bocky Mount Cord Co Ine MONARCH—Tri-States Bldg Material Co IONCRIEF—Henry Furnace Co IONEL—International Nickel Co Inc MONITOR-American Steel &

Wire Co Marshall Furnace Co MONOCORD—Weyerhaeuser Sales MONOFLO-Bell & Gossett Co

IONOGRAM—Quincy Stove Mfg Co IONOLATH—Keystone Asphalt Products Co IONO-LINE—Quigley Co Inc IONOSEAL—Monroe Co Inc

MONOWALL-Armstrong Cork Co MOONGLO—Formica Co MORE-DRAIN—Berger Mfg Co Div Republic Steel Corp

EX Morse Chain Co N-WALL Morgan Co COWALL Bestile Mfg Co MOR-SUN-Morrison Steel Prod-

RTARITE-Western Lime & Cement Co RTASEAL US Gypsum RTEX - Mortell (J W) RTITE - Mortell (J W)

MOSAIC-Mosaic Tile Co MOTORELAY-Barber-Colman Co Heater Co MOTORSTOKER—Earsbey Machine

MOTO-SANDER-Dremel Mfg Co MUFFLETONE-Gelotex Corp MULLINAIDER-Mullins Mfg Corp NoN-SAG-Farley & Loctscher Mfg Co

MULTIBLADE—General Blower Corp MULTICHROME—Stanley Works MULTIGRIP—United States Steel Bull MULTI-MATIC—Remington-Rand MULTIPLATE-Pittsburgh Plate

MULTI-SHINGLES-Barrett Div Allied Chemical & Dye Corp STACK Elizabeth Iron WESTACK Elizabeth Iron WESTACK Elizabeth Iron Westallits Paint & Varnish MULTI-TINT—Seidlitz Paint & Varnish Co MULTIVANE—Westinghouse Elec-

tric Corp Sturtevant Div MULTI-VENT—Pyle-National Co MURALAC—Tylac Co MURALEX—Libbey-Owens-Ford

Glass Ce |RAL-TONE\_Muralo Co Inc |RA-TEX\_Tile-Tex Div Flinikete Ce |RECO\_Murray (D J) Mfg Co |REX\_Metal & Thermit Corp

NAILOCK—Sanymetal Products Inc NAIROIL—National Airoil Burner Co NAICO—National Lead Co NALCO-National Lead Co NAILE-Equipment Engineering Co NAMEL-ALL-Wilbur & Williams Co NAMEL-UNE-Wilbur & Williams Co NAPCO-National Plywood Inc WARROUNE-Andersen Cerp NARROWALL-Holly Mfg Co NAPCO-National Plant Co

NATCO-National Fireproofing Corp NATIONAL-American Steel & Wire Co.

NATROCO-National Mfg Corp TEMP-Barnb TEMP-Plaste NAVAJO-American Radiator

Standard Sanitary Corp AVALITE-Du Pont (E I) de Nemours & NELESCO—Reardon Co NEO-GLO HEETAIRES—La Saile Lighting Products Inc NEPONSET—Bird & Son Inc

NEPTUNITE-Lowe Brothers Co NERVA-PLAST-Bubber & Plastics Comp Co Inc NERVASTRAL SEAL-PRUF-Rubber & plan

NETMESH—Inland Steel Products NEVAMAR-National Plastic Prod-

ucts Co EV-A-BUST—Glidden Co EVER SLIP—La Crosse Steel Roofing &

NEVERSTAIN-Nichels Wire NEW DEPARTURE-Breeze Corp inc IEWKOTE — Woodville Lime Co IEW LONDONER — American Pipwood Corp IEW LONDONER — American Pipwood Corp

NEWMANCO-Newman Brothers Inc. NIAGARA—Forest City Foundries Co NI-CLAD—Lufkin Rule Co NIFTY THRIFTY '50—Kinkead Industries

NILES\_Rostwick Steel Lath Co. NITEAIR—Lau Blower Go NOAHS PITCH—Carey (Philip) Mfg Co

NO-D-R.—Tennessee Eastman Corp NO-DRIP—Mortell (J W) Co NO-FLEX—Hart & Cooley Mfg Co NOFMA—National Oak Flooring Mfrs Association

NOISEMASTER—Simpson Logging NOKORODE-Chase Brass & Cop-

per Co Inc NON-CLIMBABLE—Keystone Steel & Wire Co. NON-CLOGGING-Link Belt Co

List of Manufacturers' Names With Complete Addresses Starts on Page D-76

MUSTANG-Asbestos Co of Texas M-VB—Scotill Mfg Co MW-50—Carey (Philip) Mfg Co MW-40—Carey (Philip) Mfg Co MYEB-LEE—Foldaws Stairway Co Inc MYEA-DISK—Insulation & Befractories Co

NUCITE-Pittsburgh Plate Glass NU-CUT—Heller Brothers Co NUDECK—United Gilsonite Laboratorius NU-FLOOR—Horn (A C) Co NU-FRAME—Rudiger-Lang Co NU-FRAME—Rudiger-Lang Coonse NU GALV—Southern States from Booting | NU-GARD—Mackianburg-Duncan NU-GLAZE-Macklanburg-Duncan Co NU-GRIP-Wiss (J) & Sons Co NU-KOIL-Macklanburg-Duncan

NON-SYPHONING-Inland Steel

NO 1 SAVAGE—Robinson Clay Product Co
NO 20—Carey (Philip) Mfg Co
NO 25—Carey (Philip) Mfg Co
NOBTH AMERICAN—North American
Corn

NORTHWOOD—Insulite Div Min-nesota & Ontario Paper Co

NOVORD—Cork Import Corp NOVOPLY—United States Plywood Corp HOX-EM-ALL—Barrett Div Allied Chemical & Dye Corp

NU-ALPINA-Inland Steel Prod-

ucts Co NU-ART-Macklanburg-Duncan Co

NU-CALK—Macklanburg-Duncan

RWOOD-Northwest Door Co TAR IN-Rutland Fire Clay Co

Products Co

NU-LIFE-Lehon Co NU-LITE-O-GLASS-Clark Wire & Supply NU-LUME-Macklanburg-Duncan NU-METAL-Macklanburg-Duncan

HUROID-Flintkote Ce HU-STATIC-Flintkete Co **NU-STYLE—Carr Adams & Collier** 

CRFAS—Nu-Surfas Corp. SURFAS No Surias
-TITE Nukem Products Co
-VIA Sol-O-Lite Mfg Co
-VIA (A C) Co In NU-WAY-Macklanhurg-Duncan

NU-WOOD-Wood Conversion Co

0-A—Oregon-American Lumber Corp OAKEN—Starline Inc OCTOPUS JR—Chelsa Fan & Blower Co Inc OBIO ATTOCLAVED—Ohio Hydrate & Sup-

Co MASONS-Ohio Hydrate & Supply Co WHITE-Ohio Hydrate & Supply Co WHITE AUTOCLAVED-Ohio Hydrate Supply Co WOODLAND—Robinson Clay Product

ORIO DIRECTOR DIPORT SUPPLY CONTROL OF CONTROL OT CONTROL OF CONTR

OIL-N-AIRE-Breeze Corporations Inc AMERICAN-American Asphalt Boof

Co
Co
ClITE—O'Rrien Corp
OLSONITE—Swedish Crucible Steel Co
OLYMPIC—Vim Car Sales Co
OLYMPIC—Washington Store Works
ONE COAT KAYCENE—Lorsa (John) & Co

Inc #1004 GREENHOUSE WHITE—King (E & 100 PLUS—Stanley Works 0N-GUARD—Macklanburg-Duncan

OPAL-New York Wire Cloth Co OPEN-TRUSS—Truscon Steel Ge ORANGE—Virginia Metal Products

Corp Hanover Wire Cloth Co ORNALITE-Haskelite Mfg Co "O-T"-Truscon Steel Co OUTSO-LITE-Tamms Industries Inc

OVALITE—DuPont (E I) de Nemours & Co OVERDOOR—Truscon Steel Co OVERMATIC—Curtis Companies m & Co OVER-THE-TOP—Frantz Mfg Go OVER-WAY—Richards Wilcox Mfg Co

X-Parker Kalon Corp XWELD-Linds Air Products Co

PABCOBOND—Paben Products Inc PABCO SANI-GRIP—Paben Products Inc PABOWELD—Paben Products Inc PAGEMAKERS—Harnischteger

PACKAGED WEATHER—General Electric Co PACKY—Kluegel (Ernest) & Co

ACKY—Kluegel (Ernest) & Co AC-TEX—U 8 Gypnum Co AINTBOND—United States Steel Co AINTGRIP—Armoo Steel Corp PAINTLOK—Republic Steel Corp PAINTOVR—American Cabinet Hardware Corp PALCO—Pacific Lumber Co PALMAIRE—Palmer Mfg Co PAMUDO—Pacific Mutual Door Co PANAMOID—Barrett Div Allied

Chemical & Dye Corp PANELBESTOS-Ruberoid Co PANELRAY-Day & Night Mfg Co. PANELWOOD-Masonite Corp PANELTILE—U S Gypoum Co PANELYTE—St Regis Paper Corp PANORAMIG—Croft Stool Prod-S Gy Regis ucts Inc PARAB-0-LUME—Berger Div Republic Steel Corp PARAGON—Barrett Div Allied

Chemical & Dye Gorp
PARA-LATHERAL—Servicised Products Corp

PARA-PLASTIC-Servicised Products Corp PARA-STONETEX.—Truncon Laboratories Div Devoe & Raynolds Inc
PARATEX—Truscon Laboratories Div Devoe
& Raynolds Inc
PARCO—Parker Rust-Proof Co

PARKAY—Parkay Inc st-Proof Ca Proof Co. PAROID—Bird & Son Inc ARRAL—Robinson Clay Product Co ARRAL—Robinson Clay Product Co ARTEMP—Firestone Tire & Rubbe AR-TOX—Parker (Ira) & Sons Co ARTOX—Parker (Ira) & Sons Co Committee Committee Committee Co Committee Committee Committee Co

Corp VISEAL Pavinoleum Inc PAVISEAL—Favincieum inc PAX—Reardon Co PAYNEA-A-VENT—Payne Furnace Co Inc PAYNEREAT—Payne Furnace Co Inc PBA UNIT—Downglac Steel Furnace Co Pittsburgh Corning Corp PEBBLEX—Libbey-Owens-Ford

PATROL-Certain-teed Products

Glass Co PECOMASTIC—Pecora Paint Co PEE GEE—Pecairo-Gaulbert Paint & Varnish

PEERLESS-American Steel & Wire Co FERLESS-New York Blower Co

PEERLESS-U 8 Gypoum Co PELLA-Roiscreen Co FELLA—ROJACTORO GO

FINA—SEMA—Chanman Chemical Co

FINA—SEMA—Chanman Chemical Co

FINA—SEMA—O Brien Corp

FINNO DITAL—O'Brien Corp

FINNO DITAL—Tremo Mig Co

FINNTERX—Glidden Co

FINNTERX—Glidden Co

FINNTERX—Bream Meta Co

FINNTERX—Penn Meta Co

FINNTERX—Penn Meta Co

FINNTERX—FIN

PENN-MOTT-Structural Slate Co PENN PACKAGED HEAT-Penn Boiler & vleania Ralt Mfg C

PENNVERNON-Pittsburgh Plate Glass Co.

PENTRA-SEAL—American Floor Surfacing Machine Co PERALEX—Alexander Film Co Engineering

PERCOPROOF-Carey (Philip) Mfg Co EF-A-TAPE-U S Gypsum Co

PERFATILE-U S Gypsum Co PERFATONE-U S Gypsum Co PERFECTION-American Steel & Wire Co PERFECTION-Inland Steel Prod-

ucts Co. ERFECTION—Iwan Brow Inc ERFECTION—Riverton Lime & Stone Co PERFECT-O-CELL-Plantergon Wallboard

PERFOLATH-Cortain-tood Prod-PERFORATED FELTEX-Carey

(Philip) Mfg Co ERMA-GAED—Gilbert & Bennett Mfg Co ERMAGLAS—Smith (A 0) Corp ERMALAP—National Aluminum Products

PERMALITE-Great Lakes Carbon

EBMALUME—Shower Door Co of America EBMA-SCREEN—Gilbert & Bennett Mfg Co PERMASEAL—Chapman Chemical PERMASON-Monsanto Chemical Co PERMATONE WHITE-Johns-Man-

ville Corp

Ville Corp

Chapman Chemical Corp.

Chemical Corp. PERMATON E—Chapman Themical Co-PERMATON 1050—Chapman Chemical Co-PERMATON WB—Chapman Chemical Co-PERMATON Protectol Corp PERMATON—Protectol Corp PERMATON—Willow A Williams Co-PERMOILP—Aluminum Industries Inc PERMOILP—Willow A Williams Co-"PERMOILP—Willow & Co-Inc PERMOILP—Willow & Co-Inc PE PET-Breeze Corporations Inc

PUTTER—Schalk Chemical C -Petroleum Hest & Power Co -Peck Stow & Wilcox Co P&H-Harnischfeger Corp PHOENIX—Russell (F C) Co PHOENIX—Samson Cordage

Works CKLE POLISH-American Chemical Paint PICK-UP CART-Inland Steel Prod-

ucts Co PILOT-Fasco Industries Inc PILOT-Johns-Manville Corp

PIONEER\_Flintkoto Co. nical Co PITTGAULK-Pittsburgh Plate

Glass Co PITTCHLOR-Pittsburgh Plate Glass Co PITTCIDE—Pittsburgh Plate PITTCO-Pittsburgh Plate Glass Co PITTSBURGH INTER-LOCK-Jones

& Brown Inc PIVOT-LIFT—Frantz Mfg Co P&K-Harnischfeger Corp P-K-Parker Kalon Corp
PLANET-Johns-Manvilla Corp PLANET--Puritan Cordage Mills PLANEWELD-Lincoln Electric Co PLASCO UTILITY-Pittsburgh

Plate Glass Co
ASTER PENCIL—Schalk Chemical Co
ASTEX—Reardon Co
ASTIC-CALK—Chamberlin Co of America

PLASTIC ELASTIGUM—Barrett Div Allied Chemical & Dye Corp PLASTICO-Barrett Div Allied Chemical & Dye Corp PLASTIC PB—Barrett Div Allied Chemical & Dye Corp

ANTIC PLANTER—Sites Noya Paint Co-ANTIC WOOD—Boyle Midway Inc. ANTIGMASS—Warp Brothers ANTIGMASS—Warp Brothers ANTIGMOUD—Werner (R D) Co Inc. ANTIGMO—Werner (B D) Co Inc. ANTIKOO—Werner (B D) Co Inc. PLASTIKEOD—Werner (R D) Co IncPLASTIKEOD—Describe Cop) Co IncPLASTIKEOD—Describe Cop) Co IncPLASTIKEOD —Describe Cop) Co IncPLASTIKEOD—Werner (R D) Co IncPLASTIKE—Werner (R D) Co IncPLASTIKE—Werner (R D) Co IncPLASTIKE—Werner (R D) Co IncPLASTIKE—Werner (R D) Co IncPLASTIKE—TO S Ground Co
PLASTIKE—TO S Ground Co
PLASTIKE—TO SIGNATION—AND PRODUCTS
PLASTIKE—TO STATE—TO SIGNATION CO
PLASTIKE—TO SIGNATION CO
PLASTIKE CO
PLASTIKE

PLAX-COTE—Lose Brothers
PLEXIGLAS—Robm & Hass Co
PLEXITE—American Window Glass Co
PL 0 & W PUTYT—King (E & F) & Co Inc
PLUGMOLD—Wiremoid Co
PLUMBERS KRAK-STIK—Laire Chemical

P L V-Link Belt Co PLYBASE-Douglas Fir Plywood Association PLYCRETE—Harbor Plywood Corp PLYFORM—Douglas Fir Plywood

Association PLYLOCK—M & M Woodworking Co PLYMETL—Twis City Hardwood Lumber Co PLYMOUTH—Clark-Babbitt Industries Inc PLYMOUTH—Clark-Barbers Mig Co PLYPANEL—Douglas Fir Plywood Ass'n

PLYRON-Douglas Fir Plywood Ass'n VPREG Actns Plywood & Vencor Co

PLYSCORD—Douglas Fir Plywood Association Georgia-Pacific Plywood & Lum-

PLYSHIELD-Douglas Fir Plywood Association YWELD—Actus Plywood & Vencer Co.

P-MIR-DEK--Miracle Adhesive Corp POINTMASTER—Markwell Mfg Co

Inc POLIDADE—Hoboken White Lead & Color Works Inc
POLISH-OL—Glerwin-Williams Co
POL-MER-IK—Archer-Daniels-Midland Co
POLLMAN HOMES—Thyer Mig

Corp PORCHIDE--Pittsburgh Plate

Glass Co
PORETHERM—Porete Mfg Co
POR-LOX—Truscon Laboratories Div Devoe & Raynolds Inc Mutachler Brothern Co PORTA-BILT—Mutachler Brothern Co PORTO-SHEAR—Black & Decker

Mfg Co POTTSCO—Celetex Corp POWERAIRE—Westinghouse Elec-

tric Corp POWER FLEX '--Link Belt Co OWERKOL--Jackson & Church DESCRIPTION - Jackson & Church POWERSTAT-Mercold Corp POWER VANE--Chicago Pneumatic Tool Co POWERVEYOR--Equipment Engineering Co POWER-VEYOR--Rapids-Standard Co

PRAIRIE-American Steel & Wire PRECIPITRON-Westinghouse Electric Gerp
PRECISION-BUILT—Hemasete Co PREMIER-American Steel & Wire

PREMIER-Bradiey Lumber Co of Ark
Ark
PREMIER—Holister Coll Spring Mg Co
PREMIER—Heal Trims Inc
PREMIER—Heal Trims Inc
PREMIER—Heal Trims Co
PRESDWOOD—Masonite Corp
RESDWOOD—Masonite Corp PRESERVOL-Ruberoid Co PRESPINE -- Curtis Cos Inc

PRESSURE-SEAL—Anderson Corp PRESTILE--Prestile Mfg Co Farly & Loctscher Mfg Co E SUPERLIME-Woodville Lime PRESTO-P

PREWAY CEAMPIONS-Pronting Wabers PRIME-KOTE-Carey (Philip) Mfg

PROMENADE TRAFFIC TOP-Colotex Corp
PROPELLAIR -- Robbins & Myers Inc
PROSLATE -- Bird & Son Inc

PROTECTIVE COVER-DRI-Flintkote Co PROTECTO -Superior Fireplace Co

PROTECTOR-American Steel &

PROTECTORELAY-Minneapolis-Honeywell Register Co PROTEK-WOOD—U S Plywood COTPX -- Autolene Lubricanta Co

PROTEXIT-Sarrett Div Allied Chemical & Dye Corp

P T A-Plastic Tile Co of America
PUL-LIFT-Yale & Towne Mfg Co PULL-PUSH-Stanley Tools Div Stanley Works Stanley Works Mortar & Supply Co PUL-TITE—Stanley Works

PUSH-OVER-Allith-Prouty Inc PUTITE—Ever-Plastics Corp PUTITY MASTER—Fastemer Corp PYRALUX—Du Pont (E I) de Nemours &

TEAMID—O'Brien Corp
YRAMID—Tamms Industries Inc
YRAMID—Tamms Inc
YRAMID—Tamm

PYROFAX PYROMENT-Koasbey & Mattison

Q-CHROMATIC—Quigley Company Inc Q-CHROME—Quigley Company Inc Q-T DUST LINER—Celetex Corp QUAD-Trade Wind Motorfans QUARTER BOARD-Masonite Corp. CKCET-Grand Specia CK CRESTO-Reardon CKLOCK-Fletcher Te QUICK-SAW-Black & Decker

MIC CO.

CICKSEAL—Standard Dry Wall Products

CICK SIRA—American Florewall Co.

CICK TIP—Fletcher Terry Co.

CICK WORK—Walting Corp.

CIET MAX—Gerster May Corp.

CIETON—I S Gyosen Co.

CIETON—I S Gyosen Co.

COMMICTON COMMICTON CONTROL OF PORTLAND

COMMICTON—OF THE COMMICTON COMMICTON—OF THE CO

Cement Co
QUIKHETER—Adam (Frank) Electric Co
QUIKHETER—Lewis-Shepard Sales Corp QUIK-SPEAY—Sheffield Bronze Paint Corp.
"QUILT"—Cabet (Samuel) Inc.
QUON-KOTE—Stran-Steel Div. Great Lakes Steel Corp QUONSET—Stran-Steel Div

Great Lakes Steel Corp

RADIA—Shapler Mfg Co RADIAN THE Cannelton Sewer Pipe Co RADIANT-RAY—Radiant-Ray Radiation Inc RADIATION DISCS—Munn & Steele Inc RAINCHECK-Protection Products

Mfg Co

RAINSEAL—Reeves Steel & Mfg Co

RAINTITE—Paheo Products Inc RANGH PLANK—Bruce (E L) Co RANDALITE—U S Plywood Corp

RANGER-Roberts Mfg Co 

RA-TOX—Hough Shade Corp RAWL-ANCHORS—Rawlplug Company RAWL-DRIVE—Rawlplug Company Inc RAWL-TAPERS—Rawlplug Co Inc RAYFLEX-Flintkete Co

RCSB-Red Cedar Shingle Bureau READING—Alan Wood Steel Co READING ALL-BEARING—Reading Hard-ware Cortp READING CAREFREE—Reading Hardware

Corp No. 1 DEAL—Reading Hardware Corp.
READYBEND—Plastergon Wallboard Co.
REALOCK—Wickwire Spencer Steel Div Colorado Fuel & Iron Co.
Pach Mall. Missouri Portland Cement Co.

RED BRAND-Keystone Steel & Wire Co RED CAP-Warner Ventilator Co RED DEVIL-Pecora Paint Co

RED DIAMOND-Missouri Portland Cement. REDUCTION COMMUNICATION OF THE RESIDENCE OF RED TOP-Keystone Steel & Wire Co RED VIO-TEX—Warp Brothers
REEDEX—Libbey-Owens Ford Gias Co
Gias Co
Gias Co
Gias Co
Giffer Gilldon Co
REGAL—Mid-States Steel & Wire Co
REGAL—Furtan Cordan Mills
Giffer Giber Co
Giffer Giber Co Glass Co Glass Co Strix—Bastian-Blessing C REGULAIRE-Perfection Steve Co RELIABLE-Allith-Prouty Co RELIABLE—Lufkin Rule Co REN-0-VITE—Glidden Co BEN-0-WAX—Glidden Co RENT-A-CLARKE—Clarke Sanding Ma-RE-NU-Flintkote Co & Varnish Works REPUBLIC-TAYLOR-Republic RESINIZED-SPEED-GRITS-Behr-Manning Corp
RESINWOOD—Rock Island Millwork Co
RESINGOTE—Belly Tar & Chemical Corp
RESIST IT—American Flurest Co
RESNPREST M & M Woodworking Corp REVERBOLITE-Celotex Corp OLAIRE Victor **REX**—Flintkote Co REX — Woodville Lime Co REX ADJUSTABLE DISCHARGE MOTO-MIXER — Crain Belt Co REX HORIZONTAL MOTO-MIXER — Chain It Co
IDE—Horn (A C) Co
MOTO-AGITATOR—Chain Belt Co
PAR—Sherwin-Williams Co REXTAS—Flintkote Co **REXVANE**—Westinghouse Electric Corp REYN-O-CELL—Reynolds Metals Co REYNOLDS—Clark-Babbitt Industries REZ Monsanto Chemical Co REZ Monsanto Chemical Co REZICOTE Monsanto Chemical Co REZISTAL TREATED Huttig Mfg Co REZISTAL TREATED Chemical Co REZO-Paine Lumber Co RICHARDSON—Flintkote Co RICHGLAZE—Richkraft Co RICHKURE-Richkraft Co RICHTONE—Lowe Brothers RIDGOLATOR—Klauer Mfg Co RIDSMEL—Holley Chemical C RIGID—Machine Rebuilding Co Steel Corp IPOLIN-Glidden Co IP-0-LIN-Glidden RITE-LOCK—Adams-Rite Mfg Co Inc
I W PLUG-A-LEAK—Toch Brothers Inc
M M-Bobbins & Meyers Inc
M-Bretside Machinery Co
BBINSUL—Bobinson Clay Product Co
CHESTER—Mitwaukee Stamping Co ROCFORM—Rockform Corp ROCKFORD—National Lock Co

RIPLEX-Berger Mfg Div Republic RITEWALL—Ohio Hydrate & Supply Co KITEWAY—Milwaukee Stamping Co RIVAL—Lifetin Rule Co RIVALT—Goodrich (B F) Co E I W.—Toch Brothers Inc R I W LIQUID KONKERIT—Toch Brothers Durham (Bonald) S Gypsum Cs ROCKOUSTILE-Johns-Manville Corp ROCKTEX-Carey (Philip) Co RODDISCRAFT—Reddis Plywood Corp
ROL-AWAY—Beall Pipe & Tank Corp
ROLCO—Roiscreen Co
ROLITE—Roiscreen Co ROLL-AWAY-Frantz Mfg Co

ROLL-O-HOIST-Construction Machinery Sales Co ROLL-N-FOLD—Majestic Co ROLL-POINT-American Cabinet Hardware Co ROLL-UP-Stanley Works ROL-R-WEDG-Richards Wilcox Co OL-TOP Edwards Mfg Corp Woodville Lime Co ROMFH-Ludman Core OMOCO Rocky Mount Cord OOF DRES Forman Ford &

ROOFINSUL-Johns-Manville Corp ROOF RENUR—American Asphalt R ROOF-VENT—Reed Unit-Fans Inc ROTABIN—Frick Gallagher Mfg Co ROTARY—Swartwoot Co ROTO-Truscon Steel Co ROYOFDGER-Skilsaw Inc ROTOGLIDE—Skilsaw Inc

ROTOVENT-Curtis Cos Inc. RO-WAY-Rows Mtg Co Products Corp Products Corp Products Corp Boxdale Building Roxdale Building ROYAL-American Steel & Wire Ca AL Chattanooga Implement & Mfg Co

ROYAL—Chattanooga implement & MIR ROYAL—Nordyce-Crossest Lumber Co ROYAL—Notional Mertar & Supply Co ROYAL—Robinson Clay Product Co ROYAL FILISH—Roach & Musser Co BUBBER COAT—Wilbur & Williams Co RUBBER GARD—Wilbur & Williams Co RUBBER LIKE-Bird & Son Inc RUBBER ROLLER—American Cabinet Hardware Corp RUBBERTEX-Flintkote Co

RUBERINE-Rubereid Co. R-NO-MORE—Sullivan Co
B-R-BOND—Elliott Paint & Varnish Co
B-R-BOND—Elliott Paint & Varnish Co
DICO—Rudy Furnace Co
DISTEEL—Rudy Furnace Co
U-F—Reed-Unit-Fans Inc

RUFTEX-Flintkote Co RUNWELL-Frantz Mfg Co RUSCO-Russell (F C) Co RUSSWIN-Russell & Erwin Mfg Div American Hardware Corp

STCOTINE—Sullivan STREM—Speco Inc & William **RUTHLESS—Keystone Steel &** Wire Ce

R-V-LITE—Arrey Corp R-V-TEX—Arrey Corp RWK—Reardon Co RYOLEX—Silbrico Corp BYSDON—Sioux Steel Co

SARINITE U S Gypsum SACHEM—Samson Gerdage Works SAFEGUARD—Sterling Hardware Mfg Co SAFEKOTE-Ruberoid Co SAFE-N-DRY-Ruberoid Co SAFE-T-GRIP-Central Paint & Varnish Works SAFE-T-MILL—Power Development Co Inc SAFE-T-STEP-O'Neil (Carl W) & Asso-

SAFETY CIRCLE-Allis-Chalmers Mir Co SAGINAW-American Radiator & Standard Sanitary Corp SAG-NOTT—Harbor Plywood Corp SALESMAKER-Bruce (E L) Co ALESMAN Mountain Co AL-MO—Standard Asbestos Mfg Co AMCO—Starline Inc

SANACOUSTIC-Johns-Manville COPP SANDMASTER-Atlan Floor Surfacing Machinery Corp SAND-O-FLEX — Merit Products Inc SANDRAN — Sandura Co SANDY MAC — Ever Hot Heater Co SAN-FINISH — Alton Laboratories

SANICOTE—Reardon Co
SANI-SETT—Ever Flastice Corp.
SANI-SETT—Ever Flastice Corp.
SANITAS—Randard Coaled Products Dir Interclemical Corp.
Lord-British Corp.
Lord-British Corp.
SAN-REE INGER—Reynolds Wire Co
SAN-SEUL SURGE—Reynolds Wire Co
SAN-SEULVEYT—San-Scuip: Inc.
SANTOBANE—Monasanto Chemical Co
SANTOBANE—Monasanto Chemical Co
SANTOBANE—Monasanto Chemical Co
SANTOBANE—Monasanto Chemical Co
SANTOBANE—Chemical Co SARATOGA-American Radiator &

Standard Sanitary Gorp SATINGOTE—Insulite Div Minnesota & Ontario Paper Go SATIN FINISH-Truncon Laboratories Devoe & Raynolds Inc SATIN FLAT—Arnesto Paint Co Inc SATIN-LAC—Breinig Brothers Inc Wallage, Mfg Co

SATINOL-Libbey-Owens-Ford Glass Co SATIN SPAR-Certain-lead Products Corp
SAVABETSH — Schalk Chemical Co
SAVAGE — Bobinson Clay Product Co
SAVA-MAID — Crosley Div Avco

Mfg Corp
SCREEN—Farley & Loctsch SAV-A-SPACE—Fir Door Institute SAX-ALDRICH Co S & Surface Combustion Corp SCHUFLI-Pittsburgh Plate Glass

Institute

SCREEN & SASH PRIMER LINE—King (E & F) & Co Inc

GEREN GLASS—Warp Brothers

SCREEN GLASS—WAYD BUTGETS
SCREEN MASTER—Engineered Products Co
SCREEN-0-MATIC—Lockhart Mfg Corp
SCREWLOCK—Sanymetal Products Inc
SCREWTITE—Claris-Rabbitt Industries Inc
SCREW-TITE—Independent Nail & Packing

SCRUGUN-Black & Decker Mfg SCRU-TITE-Bennett-Ireland Inc SEALDHEX—Flintkote Co SEALDHEX—Flintkote Co SEALD DIGHT—Coddington (E. D) Bug Co SEALDON—Certain-toed Products Corp SEALEDGE—Flintkote Co SEALED GRAYLITE LOK-JOINT-Insulite Div Minnesota & Ontario Paper Co
Paper Co
Chicago Belting Co

SEALIT—Sullivan Co
SEA SWIRL—Associated Plywood SEALKOTE-Keasbey & Mattison Co SEAL OF QUALITY—Columbia Steel Co

Steel to
SEALIN-Bullivan Co
SEALISET—Sealcon Products Inc
SEALISET—Sealcon Products Inc
SEALITHE—Meadows (W B) Inc
SEALITHE—Chapman Chemical Co
SEALITHE—Official Co
SEALITHE—Starline Inc
SEALITHE INC
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SEALIT

(L J) Furnace Co SECTIONFOLD—Wilson (J G) Corp SECTIONROLL—Farley & Loctscher Mfg SECURITY—Hational Mfg Corp SECURITY SASH Security Co SELECTAIR-Johnson (S T) Co

Co R.SFAL Resear SELF-SENTERING-Truscon Steel

SEMAPHORE—Barrett Div Allied Chemical & Dye Corp SENECA-American Radiator & Standard Sanitary Corp SENSATHERM-Mercaid Corp TINAL Security Co SENTRY-New York Wire Cloth Co.

SERIES "62"—Graft Steel Prod-

SERIES "62 acts Co SERVIFUE-Herbst (L B) Corp SERVIFUE-Herbst (L B) Corp SERVIFUE-HERBST FURNISHED (D) Woodall SER-WALL-Service Products D) Woodall SER-WALL-Service Products D) Woodall SER-WALL-SERVEN STAR IMPERIAL—U S Gyrmum Co SERVEN STAR IMPERIAL—U S Gyrmum Co SERVEN STAR IMPERIAL—U S Gyrmum Corp SHADEMORE—Clopay Corp SHADEMORE—Clopay Corp SHADEMORE—Clopay Corp SHADEMORE—Mortican Asphalt Roof Corp SHADEMORE—Mortican Asphalt Roof Corp

SHADOTONE-Flintkets Co. SHADOW-LINE-Wood Conversion Co W-L

SHAKERTOWN-Perma Products Co SHANK GAP-Bennett-Ireland Inc SHAWNEE-American Radiator & Standard Sanitary Corp

SHAWNEE—Flintkete Co SHEDWELL—Frantz Mfg Co SHEETFLEXTOS—Keasby & Mattison Co HEETROCK-U S Gypsum Co

SHEETSTONE—Globe Siding Products Co SHEELSY—National Tube Co SHELF-X—U S Gypsum Co SHELL-PLI—Youngstown Mrg Inc SHELVADOR-Crosley Corp

SHERADUCT—National Electric Prod Corp SHERBURNE—Technical Appliance Corp SHIED-ARC—Lincoln Electric Co

SHINGLECOAT—Barrett Div Allied Chemical & Dye Corp SHINGL-GARD—Wilbur & Williams Co SHINGL-ROL—U S Gypsum Co SHINGLSTIK—American Asphalt Boof Corp SHOWER-PROOF-Calbar Paint &

Varnish Co SHURLOK-Flintkote Co SHUT-0-VENT—Reed Unit-Faus Inc SHLA-TEX—Tamms Industries Inc SHLO—Tamms Industries Inc

SILCON BRONZE-Chase Brass & Copper Co Inc SILENT-National Mfg Co SILENTAIRE—Berger Mfg Co Div Republic Steel Corp

Republic Steel Corp SILENT BREEZE—Holcomb & Hoke Mfg Co SILENTITE—Curtis Cos Inc SILENTVANE-Westinghouse

**Electric Corp Sturtevant Div** Electric Corp Sturrevant UIV
SILIOR C—Mesher Brothers
SIL-O-ETT—US Gypnum Co
SILIO-SIAL—Description Co
SILIO-SIAL—Description Co
SILIO-SIAL—Description Co
SILIO-SIAL—Description Co
SILIO-SIAL—Description Co
SILIO-SIAL CO
SILIO chinery Co SINKMASTERS—Humphreys Mfg Co SIOUX—Albertson & Co Inc SIROCCO—American Blower Corp SISALATION—Sisalkraft Co S I S-Barrett Div Allied Chemical

& Dye Corp SKILDRILL—Skilsaw Inc SKILTOOLS—Skilsaw Inc PIPE—Robinson Clay Product Co SKUFPRUF—Richkraft Co SKX-Sisalkraft Co SKYLINE—Flintkete Co SKYTEX-Libbey-Owens-Ford

Glass Co SLATEKOTE-Johns-Manvilla Corp ATE KOTE Lebon Co Orchard Mfg Co

SLIDA-DOOR—Orchard Mrg Co SLIDE-ALL—American Sliding Door Hardware Corp SLIDE-EASE—U S Sliding Door Corp SLIDING-LOC-CLIP-E.G. Building

Fastoners Corp
IP-JOINT—Robinson Clay Product Co
JP-PAK—National Cash Register Co
JP-PROOF—Sullivan Co SMALMESH-Inland Steel Prod-

ucts Ce SMITH & HEMENWAY—Creeent Tool Co SMITH-MOBILE—Smith (T L) Co SMITHWAY—Smith (A O) Corp SMOKABATOR—Wheeling Furnace Corp

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Corp S.N.—Scott-Newcomb Inc SNAPLOK—Reeves Steel & Mfg Co SNAPTITE—Berger Mfg Div Republic Steel Corp

SNOLITE-Pittsburgh Plate Glass

NOW DRIFT-U S Gypsum Co NOWFLAKE-Kelley Island Lime & Transport Co SNIG-FIT—Hotstream Heater Co SNIG-FITE—Engineered Products Co SOAK-IT—Tamms Industries Inc SOFTWELD—Lincoin Electric Co SOLAR FLAME—United States Radiator Corp SOLARITE—Rearbout Co

Pittsburgh Plate Glass Co IDON—Lasting Products Co IDOR—Ipik Plywood Corp

SONOAIRDUCT-Sonoce Products Co

SONOBRITE—Sonneborn (L) Sons Inc SONOTURE-Sonoco Products Co SOUTRACIDE Metropolitan Befinin SOUTHERN BREEZE Barnes Mig SOUTHGATE Puritan Cordage Mill SOUTH WIND SECURIC-Warner Cor

SPACEMAKER-Steelcraft Mfg Co SPEED-Louisville Cement Co

Corp
SPEED CLAMPS—Tinnerman Products Inc
SPEED CLIPS—Tinnerman Products Inc
SPEED-DRI—Central Point & Varnish Works
SPEED-EASY—DuPont (E I) de Nemours &

SPEE-DEE-Dalton Mfg Co SPEED HOMELIME—Louisville

Cement Co SPEEDLAY—Certain-teed Products

SPEEDMATIC-Porter-Cable Ma-

chine Co
EED NUTS Tinnerman Products
EED O-LITE Lincoln-Schlueter F
chinery Co chinery Cu

"SPEED SPIRAL"—Super Tool Co

SPEEDTILE—Rockford Brick & Tile Co

SPIN-A-BRUSH—Portable Electrical Tools

SPINNER-American Floor Surfacing Machine Co SPINNER—Inland Steel Products Ce

SPIREX—Caldwell Mfg Co SPOT-Samson Cordage Works

SPOTNALLER "Southals In SPRAY-ACOUSTIC Sprayo-Flake Co SPRAY-GVETTE—Sprayo-Flake Co SPRAY-RITE—Binks Mfg Co SPRAY-RITE—Binks Mfg Co SQUARE DEAL—Koystone Steel &

Wire Co SQUARE DEAL-Upson Co SQUARE GUTTER—Inland Steel

Products Co

R P — Sonnebern (L) Sons Inc
IRCO — Southern States Iron I STABLE-ARC—Lincoln Elect STA-FAST—Texas Co etric Co

STAINCTRE-Wilbur & Williams Co STAINCTRE-Wilbur & Williams Co STAIN-STOP-Wilbur & Williams Co STAINTOX-Abesto Mfg Co STAINTOX-Abesto Mfg Co STA-LITE—Wood Conversion Co STALWART-Flintkote Co

STANDARD-American Hardware Corp STANDARD-Williamson Heater

STANDARD DUOLUX-Masonite

STANDARD PRESDWOOD-Masonite Corp ANDFORATED Standard Stamping &

STANLEY-CARTER-Stanley Works Stanley Electric Tools Div STANLOID-Stanley Works

STA-PAR-Sices Soys Paint Co STAPLE-LOX-Flintkete Co

STAPL-ON Hotelaim (E B) Co STAR—Houston Blow Pipe & Sheet Metal STAR-Mid States Steel & Wire Co.

STAR-Turner & Seymour Mfg Co AR U S Gypsum Co ARCRAFT U S Gypsum Co

STAREX-Ruberoid Co STA-SLATE-Ruberoid Co STATIC-Flintkote Co

ATITE—Angier Corp AUFFER KNAPSACK—Hudson (II D) Mfg

STA-WET-Sargent-Gerke Co STAYBRITE-Horn (A C) Co STAYPAK—Western Pine Associa-STAY-RIB-Inland Steel Products

STEADFAST-Flintkote Co CABLE-Goodyear Tire & Rubber Co

Inc STEELCRETE—Wheeling Corrogating Co STEEL FIX—New York Blower Co STEEL-FLITE BIN-VEYOR-Ke-

Wanee Mfg Co Wanee Mfg Co Penn Metal Co Inc STEELTEX-Nichols Wire & Alum-

STEELTEX-Pittsburgh Steel Products Co STEEP-SLOPE—Bennett-Ireland

Inc STEELWELD-Cleveland Tramrail Div Cleve-STERLEX-Libbey-Owens-Ford

CHASS CO STERLING—Lufkin Rule Co STERLING—Waldorf Heater Co STEVEDORE JR—Rapids-Standard Co Inc STOACO ALLWEATHER—Storm Windows Aluminum Inc STO-A WAY—Marschke Co STOKABILT—American Foundry & Furns

STOK-A-TIMER-Mercoid Corp STOKERELAY-Minneapolis-

Honeywell Regulator Co STOKERMATIC—Rheem Mfg Co Stekermatic Div

STONEFELT—Johns-Manville Corp STONESET—Medusa Portland Coment Co STONESULATE-Carey (Philip)

Mig Co con Laboratories Div Beroe

STONEWALL-Ruberoid Co -Continental Ashestos & Re-STUDDLE CO.
fining Co.
STOP. A. RATTLE—Superior Fastener Corp.
STOP. IT.—Tamms Industries Inc.
STOR. A. WAY.—Barber Mfg. Co.
STOR. IN. DOOR.—Grote Mfg. Co. Inc.
STOR. IN. LULT.—Superior (L). Sons Inc. STORMLIGHT—Sonneborn (L) sons inc STORMPROOF—National Mfg Co

STORMSEAL-American Steel STORMSEAL-Columbia Steel Co

STORMY WEATHER-Protection Products Mfg Co

STRAND-Fenestra Building Prod-STRAN-STEEL-Great Lakes Steel

STRATOLINE-American Cabinet Hardware Corp STREAMAICE—Young Radiator Co

STREAMLINE-Tylac Co STREAMLUX-American Cabinet Hardware Corp STRIKE-RITE—Stanley Works STRIPITE—Bostwick Steel Lath Co

STRONG-BILT-Upson Co

STRONGHOLD-Clark-Rubbitt Industries Inc STRONGHOLD-Independent Nail & Packing

Co STBONGMAN Southern Galvanizing Co STRUCTROBOARD US Gypsum Co STRUCTO-CAL US Gypsum Co STRUCTO-LITE US Gypsum Co

STUBBY-Holly Mfg Co STUBBIT—Helly Mig Co STUCCO-LIVE Taimus Industries Inc STUCCO-LIVE Taimus Industries Inc STUCCO-BLAI—U-8 Gypaum Co STUEND-BLAID Lime Co STUEND-GLAID Lime Co STUEND-GLAID Mig Co STUEND-GLAID Mig Co STYLE-KHROME—Therone Co STYLE-KHROME—Therone Co STYLE-KHROME—Therone Co STYLE-KHROME—Therone Co STYLE-World Passie The Co ne Co Tile Co Tile Co

SUNBEAM-American Radiator & Standard Sanitary Corp SUNFLEX-National Gypsum Co SUNFLOWER Certain-tood Prod-

ucts Corp SUNFLOWER—Onto Hydrate & Supply Co SUN-GLO—Pittsburgh Plate Glass

Co SUN-I-CLIME—Lorden Machinery Co SUNLIGHT—Geogral Motors Corp SUNPROOF-Pittsburgh Plate SUN-RED EDGE-Raynolds Wire

NTILE -- Cambridge Tile Mfg Co SUN VITA-Keystone Wire Cloth

Co PER Evans Products DUR Walsh Refractor SUPERAIRE-Majestic Co

k Co PER CYCLE—Chicago Pneumatic Tool Co PER DE LUXE—Evans Products SUPER-EX-Inland Steel Products Co

SHDER-FELT ... Johns-Manville Corp
PERFEX Perfection Store Co
PERFEX Perfection Store Co
PERFEX Perfection Store Co

SUPER-HARDBOARD-Harbor Ply-

wood Corp

Weel Corp

Tele Co Inc. SUPERIOR-Carr Adams & Collier

SUPERIOR-Crane Company SUPERIOR-Inland Steel Products

PERIOR—National Mortar & Supply Co PERIOR—Youngstown Mrg Inc PERRIEEN—Devoe & Reynolds Inc PERRIEEN—Berole & Bronze Paint Cor PER-KLOME—Sheffield Bronze Paint Cor PER-LIMOID—North American Cemer

Corp SUPERLITE—Superior Wall Products Ca SUPER-LUSTER—Lowe Brothers Co SUPER-NICKEL—American Brass Co SUPER-PLYCRETE-Harbor Plywood Gorp

con Laboratories Div SUPER POR SEAL Truscon Laboratories Div Devoe & Raymolds Inc SUPERSEAL Barland Weatherstrip Mateial Co FER-SIOUX—Sioux Steel Co FER GG — Eagle-Picher Co PERSTEEL — Kalamanoo Store & Furnace

SUPER STEEL-Williamson Heater SUPER-STRIP-Carey (Philip)

Mfg Co PERTEMP Eagle-Picher Co PER-TEMPERED Wickwire Spencer Steel PER-THERMO-Chicago Fire Brick Co SUPER WEIGHT-Barrett Div

Allied Chemical & Dye Corp SUPER-X-Republic Steel Corp PREME American Furnace & Four PREME Blue Ridge Tale Co Inc. PREME Malta Mfg Co

SUPREME-Samson Cordage SUPREME-Southern Pine Lumber Co SIPREMIS—Du Pont (E 1) de Nemoura & Co Inc

List of Manufacturers' Names With Complete Addresses Starts on Page D-76 SURE DRAFT-Little (H C) Burner Co Inc SUREGRIP-Stanley Works SURETY-Carey (Philip) Mfg Co W 102 1

SWANEE-Berger Mfg Div Republic Steel Corp SWING-UP—Stanley Works SYNTEX—Flinikete Co SYNTRON—Syntren Ce SYRAGUSE—Porter-Cable Machine

T

AC-EZY—Monarch Metal Weatherstrip Co AG—Tagliabos (C 3) Corp MAM-KLL—Tamms Industries Inc AMACH\_L—Tamms Industries Inc AMCO—Tamms Industries Inc AMCO—Tamms Industries Inc AMCO—Tamms Industries Inc AMCO—Tamms Industries Inc AMCO—TYPY—Tamms Industries Inc AMCOATER ALIGNIUM—King (E & F.) & Co Inc.

TAPERLOX—Flintkote Co TAPERTEX—Flintkote Co TAPGUN-Black & Decker Mfg Co TARBESTOS-Carey (Philip) Mfg

Go TARGET-Kelley Island Lime & Transp

TAR-ROK-Barrett Div Allied Chemical & Dye Cerp TASCOM—Cabet (Samuel) Inc TECHIDE-Pittsburgh Plate Glass Ce

TECTON-Bird & Sen Inc. TEE-LOK-Ruberold Co TEGCO—Technical Glass Co Inc TEKWOOD—U S Plywood Corp TEL-O-POST—Brainard Steel Co TEMBOARD-Armstrong Cork Co TEM-CLIPS-Armstrong Cork Co TEMLOK-Armstrong Cork Co TEMPERED DUOLUX-Masonite

Corp TEMPERED PRESDWOOD-Masenite Corp TEMPERED TEMWOOD-Armstrong Cork Co

TEMPRTILE-Masonite Corp TEMPRYTE-Truscon Steel Co TEMWOOD-Armstrong Cork Co TENNESEAL-Tennessee Coal Iron

& Railroad Co
10-PLANTIC—Quigley Co Inc
TENSION-TITE—Rudiger-Lang Co

TEN-TEN-Allith-Prouty Inc TERMINIX-Bruce (E L) Co TERRAFLEX-Johns-Manville

Gorp

RRATOX — Wood-Treating Chemical Co

RRATRAC — American Tractor Corp

Louden Machinery Co TEXACO-Texas Co TEXBORD—Geletex Gerp TEX-LOK—Texas Co

TEXROPE—Allis-Chalmers Mfg Co TEX-TAB—Ruberold Co TEXTOLITE-General Electric Co Chemical Div

THARCO-Armstrong Co THATCHSULATE-Carey (Philip) Mfg Ca THERMACOUSTIC-National Oyp-

sum Co THERMAL-FLO-Coloman Co Inc. THERMASTER—Thatcher Furnace Co THERMATIC—Wayne Home Equipment Co THERMAX-Calotex Corp docts Corp THERMO-CON-Higgins Inc THERMOCRETE-Certain-teed

Products Co THERMO-DRAULIC—Perfex Corp THERMO-DRAULIC—Perfex Corp THERMO-FILL—U. S. Gypsum Co THERMO-GRIP—Ideal Industries Inc THERMO-HILLMIDIGRAPH—Brisol Co THERMOPANE-Libbey-Owens-

Ford Glass Co THERMOPILOT-General Controls Ca THERMOSEAL-Flintkote Co THERMO-SEAL-Russell (F C) Go THERMOTEX B-Carey (Philip)

Mig Co THATCH-Globe Siding Products Corp Inc
THERM O TILE Porter Hayden Companies
THERMOTITE Coast Insulating Products

THIKBRIK—Flintkote Co THIKBUT—Flintkote Co THOR-Independent Pneumatic Tool Co

OLITH-Standard Dry Wall Products THORONEAL -- Standard Dry Wall Products -Minnesota Mining & Mfg Co EE STAR Sheffleld Bronze Paint Corp THRIFTEX-Flintkote Co

THULMAN—Chimney Sales Co THUMABUILT—Adams Thuma Co THUER—Kelley Island Lime & Transport Co TIGER—Samson Cordage Works TIGER—Texas Co TIGER BRAND-American Steel &

ROOFING-Carey (Philip)

Mfg Co TILE-TEX—Flintkote Co TIMBERGRAIN—Ruberoid Co TIMBERTEX-Ruberoid Co TIME-O-SWITCH—Minneapolis-Honeywell Regulator Co TIMBERCOID—Mercoid Corp TIMERELAY—Minneapolis-Honeywell Regulator Co

TI-NAMEL-Inland Steel Products TINNER'S RED PAINT-Pittsburgh Plate Glass Co TIN-O-LIN—Calbar Paint & Var-

nish Co TITAN—Bauer Mfg Co TITE-LAP—Barrett Div Allied Chemical & Dye Corp

A Rayolds Inc
TITE-LOCK—Barrett Div Allied
Chemical & Dye Gorp
TITELOCK—Inland Steel Products

TITE-ON-Ruberoid Co TITE-ROPE-Samson Cordage

Works
ASTMASTER McGraw Electric Co
ASTMASTER American Brass Co TOMAHAWK-Barrett Div Allied

Chemical & Dye Corp TONCAN-Republic Steel Corp TONKA—Forman-Fotu Electric Co TOOLWELD—Lincoln Electric Co TOPCO—Malta Mfg Co TOPCOTE—Sullivan Co TORKMASTEE—Tork Clock Co Inc TORKOTHERM—Tork Clock Co Inc

TOR-ON-Pittsburgh Plate Glass Co TORPEDO-Inland Steel Products Co

TORRID-Diener (George W) Mfg Co TORRID-CAST-Walsh Refractories Corp TORRID-ELET-Cleveland Steel Products TORRID ZONE-Lennox Furnace Co Inc TOTALUME-Wilbur & Williams Co TORKID ZONE—Lennor Furnace Co Inc TOTALLME—William & Williams Co TOTE-ALL—Lake Shore Engineering Co TOTRUST—William & Williams Co TOURNACEANES—Le Tourneau (R G) Inc TOURNACEANES—Le Tourneau (R G) Inc TOURNAPULLS—Le Tourneau (R G) Inc TOURNATRUCKS—Le Tourneau (R G) Inc TOWERMOBILE—Mixermobile Mfra TOWN & COUNTRY—Du Post (E I) de Nemours & Co Inc TOX A-TOL—Gildden Co

TOXEMENT—Toch Brothers
TRAFFIC TOP—Celetex Corp
TRAFFORD TILE—Keasbey &

Mattisun Co AMRALL-Cleveland Crane & Engineer-TRANS-A-LEVEL"—Argyle Mfg Co

Glass Co TRANSITE-Johns-Manville Corp TRANSITE CONDUIT-Johns-Manville Corn

TRANSITE KORDUCT-Johns-

Manville Corp
TRANSPARENT PRIMER SEALER—King (E & F) & Co Inc
TRANSPORT—Concrete Transport Mixer CoTRANSPORTABIN—Concrete Transport Mixer TRANSPORTABLE-Concrete Transport Mixer

Co TRANS SKIP—Concrete Transport Mixer Co TRANSTAY—Concrete Transport Mixer Co TRAVACOUSTIC—National Gyp-

sum Co RAVELOADER Lull Mrg Co TRAVERTONE-Armstrong Cork

CO

READ SI'RE—Horn (A C) Co Inc
REMOTE—Trence Mfg Co
REMPLEX—Trence Mfg Co
REMULEX—Trence Mfg Co
REMULEX—Trence Mfg Co
REMULEX—Trence Mfg Co
REMIAND—Trence Mfg Co
REMIAND—Trence Mfg Co
REMIAND—Trence Mfg Co
REMIANDE—Day & Night Mfg Co TRIANGLE—Keystone Steel &

Wire Co TRICOSEAL American Fluresit Co TRI-FLEX Tuttle & Bailey Inc

TRI-MESH-Keystone Steel & Wire Co TRIMTHERM-General Controls Co TRIM-TONE-U S Plywood Corp

TRIM & TRELLIS—Du Peet (E Nemours & Co Inc TRIMIX—Sonneborn (L) Sons Inc TRIMZ—United Wallpaper Inc TRIPLE DRAIN-Republic Steel

COPP
TRIPLEFLEX—Hern (A C) Co
TRIPLE LEADROTE PRIMERS—King (E &
F) & Co Inc Inc OK Den

TRIPLE-SEAL—Gelotex Corp TRIPLE-SEAL—Weatherproof Products Corp

Window Conditioning Co TRIPLETAB-Flintkote Co TRIPLE-ITE-Williamson Heater

Co TRIPOLIA-Anti-Hydro Waterproofing Co TRI-SAW—R C S Tools Sales Corp TRI-TAB-Bird & Son Inc TRI-TONE-Carey (Philip) Mfg

TRIUMPH-Inland Steel Products Co EAM---Edwards Mfg Co TROLLEY-Allith-Prouty Inc TROUBLE SAVER-Steel Scaffold-

ing Co Inc TRU-BIT—Fir Door Institute TRUCKMASTER—Toledo Scale Co TRUCKTRACTOR—Clark Equipment Co In-dustrial Truck Div TRU-CURE—Truscon Laboratories Div Devoe & Raynolds Inc.

nek Div Fruscon Laboratories Div Devoe Inc East-Bild Pattern Co TRU-FORM-Boice-Grane Co TRU-GRAIN-Johns-Manville Corp

TRUSCON-Truscon Steel Co TRUSS-LOOP-Bostwick Steel Lath Co

TRUSS-WING-Bostwick Steel Lath Co TRU-TYE-Drave Corp

TUB-CAULK-Miracle Adhesives

TUB-KOVE—Keller Products
TUBERATOR—Wheeling Furnace Co
TU-BORS—Barrows Lock Works
TUFCOTE—Du Pont (E 1) de Nemours & Co Inc TUFCRETE Tufcrete Co Inc TUFF-BOND Meore (Goodloo E)

TUFF-COTE-Moore (Goodlee E) En. TUF-FLEX-Libbey-Owens-Ford

Glass Co
Glass Co
Millers Falls Co TUFFLEX—Wood Conversion Co TUFF-TEX—Tile-Tex Div Flintkote

TUFF-TRED-Moore (Goodlee E) TUFF-WOOD-Wood Conversion

TUF-LUSTRE-Bruce (E L) Co

TULINE-Certain-teed Products Corp

TURBOVANE—Westinghouse Electric Corp Sturtevant Div burn Trolley Track Products

TUSCAR-Pittsburgh Plate Glass TUTCH LATCH-National Lock Co

TWIN-CUSHION-Macklanburg-Duncan Co TWINDOW-Pittsburgh Plate

TWINFUEL-Norman Products Co TWIN-FYR-Breeze Gorps Inc

TWIN LOCK-Bird & Son Inc TWIN-RING-Coleman Co TWO DRAIN-Inland Steel Products Co

TYLA-CHROME—Tylac Co TYLACHROMET—Tylac Co TYLITE—Tylac Co
TYL.LYKE—Continental Steel Co
TYMOTHERM—Tork Clock Co Inc

UALCO-Union Aluminum Co U-G-L-United Gilsonite Laboratories
U-LOY-Republic Steel Corp UNI-FIN—Barber-Colman Co UNI-FLO—Barber-Colman Co UNI-FORMS-Universal Form

Clamp Co UNIGRID—Truscon Steel Co UNILITE—U S Plywood Corp UNIPULL—Bennett-Ireland Inc UNISHEAR—Stanley Electric Tools

Div Stanley Works UNITAIRE—Westinghouse Electric Corp Sturtevant Div I-TEX—Elliott Paint & Varnish Co ITRIM KNAPP—Knapp Brothers M UNIVERSAL-Certain-tend Prod-

ucts Corp ucts Corp ucts Corp ucts Corp Corpus Pneumatic Tool Co NIVERSAL—Chicago Pheumatic To NIVERSAL—Cribben & Sexton Co NIVERSAL—Fischer Bracket Co NIVERSAL—Landers Frary & Clark UNIVERSAL-Carey (Philip) Mfg

CO CNXID—Parker-Kalon Corp IP AND OVER—Starting Inc UPO—Northwest Door Co UP'N-OVER—Rock Island Millor Rapublic Steel UPSON—Republic Steel Corp UPSON—Republic Steel Corp UPSON DUBL-THIK—Upson Co UPSON KUYER-KRAK—Upson Co

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Inc USP-U S Plywood Corp USS-American Steel & Wire Co USS-United States Steel Co USS-Tennessee Coal Iron & Rail-

road Ce USS AMERICAN-American Steel & Wire Go
USS CARILLOY—United States Steel Co
USS COLUMBIA—Columbia Steel

USS GOR TEN-Tennessee Coal Iron & Railroad Co USS STORMSEAL—American Steel

& Wire Co Al I'nited States Steel USS TENNESEAL-Tennessee Goal

& Railroad Co
S VITRENAMEL—United States Steel Co
ICA SERIES—Utica Radiator Corp
ILIFURNACE—Ingernoll Steel Div Borg Warner Corp UTILITRUC-Industrial Truck Div Clark Equipment Co UTILITY—Arex Co

VACKAR-Black & Decker Mfg Co VACUUM DRAFT-Norge Heat Div Borg Warner Corp VALCALOX-Young Regulator Co - American Mi FORGE Ehret rietta Co Magnesia Mfg Co VAN PACKER-Van Packer Corp. VARI-O-LITE-Flintkote Co VARI-PITCH-Allis-Chalmers Mfg

Co VAPORATRE-Penn Botler & Burner Mfg VAPORSEAL—Angler Corp V-DRAIN—Tennessee Coal Iron &

Railroad Co
EELOS Manneim Mfg & Belting Co
ELOURD Wesco Waterpaints Inc
ELOUR Devoc & Raynolds Inc VELVAGRIP-American Hardware Corp VELVET-Keasboy & Mattison Co

VELVEX-Libbey-Owens-Ford Class Co VEL WOOD-Marsh Wall Prod-

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VENTLEATE—beta Mg Co Electrical Div
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can Radiator & Standard Sanitary Corp VENTURI FLO-Barber-Colman

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VERSIBOND—Ohio Rubber Co VIBRAFRAM—Celotex Corp VIBRAPAC—Besser Mfg Co IBRO-Goodrich (B F) Co IBRO-FOIL-Horn (A C) Co Inc ICRTEX MADAGASKA-Carpenter (L E)

VICTOR-Richards Wilcox Mfg Co VICTOR-Stanley Works TIGUR—JUSTICAL Products Inc.
TICTOR-BILT—Victor Electric Products Inc.
TICTOR—Louden Machinery Co.
TICTRON.—Victor Electric Products Inc.
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VINCUL-Protective Coatings Inc

VINTEX—Rearden Co VISAFLAME—Merceid Corp VISKALT—Flintkote Co VISKOTE—Flintkote Co VISTA-Pittsburgh Plate Glass Co VITOLOIL-Pittsburgh Plate Glass

Co VITRAMIC-Ruberold Co VITREKOTE-Flintkote Co VITREON—Robinson Clay Product Co VITRICEL—Carey (Philip) Mfg VITROLINER-Condensation Em-

gineering Co VITROLITE—Libbey-Owens-Ford Giass Co TROPLAST—Atlas Mineral Products Co T-TRUS—Edwards Mfg Co VID—Wesco Waterpaints Inc

VMP-Virginia Metal Products Corp GUE Forman Ford & Co Raynolds Inc

VOLAC—Devoe & Raynolds Inc VOLCANO—Iwan Brothers Inc VOLOCITROL—Barber-Colman Co VORTEX—Westinghouse Electric Corp Sturtevant Div

VULCANITE Certain-tood Products Corp
VULCATEX—Horn (A C) Inc
VULCATEX—Horn (A C) Inc
VULCRETE—Flash-Stone Co Inc

WACO Wilson-Albrecht Co Inc WALK-OVER—Barrett Div Allied Chemical & Dye Corp WALL-FLEX-R C A Rubber Co WALLHIDE—Pittsburgh Plate Glass Co

Wallace Mfg Co Central States Wallmaster AL-LITE-Wallace MI ALLMASTER-Central Inc
WALLSTONE—Tamms Industries Inc
WALLSTEX—Columbus Coated Fabrics Corp
WALLSTRE—Devoe & Baynolds Inc
WALLWOOD—American Phywood Corp

WALTILE—Keasbey & Mattison Co WAPPAT-Mail Tool Co WARCO Walsh Refractories Corp WARD ZEPHYR-Ward (Edgar T) Indus-

WARM-AIRE-Bennett-Ireland Inc WARWOOD-Lawson (F H) Co WASHBURNE—National Mfg Co WASHINGTON—Standard Lime &

WASP—Stanley Works
WASTE-AWAY—Westinghouse
Electric Corp Appliances Dept
WASTE-KING—Gives Mfg Co WATERDYKE-Bird & Son Inc

WATER HOT -- Security Mfg Co WATERPLUG -- Standard Dry Wall Products

Inc WATER-RAY-TROLA—Ray Oil Burner Co WATERSPAR—Pittsburgh Plate Glass Co WATSON—Ruberoid Co WAUKEGAN-American Steel & Wire Co

WAVELINE-Flintkote Co. WAYELINE— tunners

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WAXCOAT—Gildden Co
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WULL--West Coast Lumbermen's Association

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WEARMASTER—Arresto Paint Co Inc
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WEATHER-BLOC-Air Rectifiers inc WEATHERBOARD-Carey (Philip) Mfg Co
VEATHERUALK—Perota Paint Co Inc
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Corp WEATHERCOTE—Glidden Co WEATHERGOOD—U 8 Gypsum Co WEATHERITE—Woodville Lime Co WEATHERITE—Woodville Jame Co WEATHERLOK—Jehns-Manville

Corp WEATHERMAKERS—Carrier Corp WEATHERMASTER—Kol-Master Corp. WEATHERPAD—Ruberaid Co. WEATHERPROOF—Starting Inc.
WEATHERPROOF—Weatherproof Preducts Corp

WEATHER-SHIELD Certain-teed Products Co
EATHER-TITE—Columbia Industries
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WEDGELOCK-Barrett Div Allied Chemical & Dye Corp WEDGE-LOCK-Berger Div Republic Steel Corp

WEDGLOK-U S Plywood Corp WEIR-Meyer Furnace Co WEIR-MEYER HEAT-Meyer Furnace Co

WELDBORD-U S Plywood Corp WELD-0-TROL-Westinghouse Electric Corn WELDTEX-U S Plywood Corp WELDWOOD-U S Plywood Gorp

Co. WERNCO-Werner (R D) Co Inc. WESLOCK-Westwood Mfg Co. WESTAIR-Western Appliance Co. Inc. WESTAPE-Wesen Waterpaints Inc. WESTBOARD-Washington Veneer Co.

WESTMORELAND-American Radiator & Standard Sanitary Corp

WEVECOTE-Insulite Div Minnesota & Ontario Paper Co WEYERHAEUSER 4-SQUARE

WHEEL EXT—Eapils-Standard Co Inc WHEEL IX—Bassett Industries WHIRL/BOOL\_Ninesten Hundred Corp WHITCO—Whitney (Vincent) Co WHITCO—Whitney (Vincent) Co WHITE ROCK—Celetex Serp WHITE ROCK—Celetex Corp

WHITE STAR—Detroit Vapor Store Die Borg-Warner Corp WHITE—Tape Evans & Co WHITESTONE—American Asphalt Roof Corp WHITE VENEER—Elliott Paint & Varnish

WIGWAM—Rubereid Co Works Inc
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COPP SOODTOX — Wood-Treating Chemical Co TOODTREAT — Wood-Treating Chemical Co TOODTILLE — Ohio Hydrate & Supply Co TOOD WINDOW UNITS — Pacific Mutual

ucts Mfg Co

Weyerhaeuser Sales Co WHALE—Samson Cordage Works 4 Wire Co

Co WHITICIDE—Rearcon Co

WILFAMCO Wilson Foundry & Machine Co WILLOW Hoboken White Lead & Color

& Standard Sanitary Corp WINTERGARPE—Pyrene Mfg Co WINTER WAY—American Radia-

Wissyo—Wickstre Spencer Steel Dis Colo-rado Fuel & Iron Curp WIZSKD—Unfain Rule Co WIZSKD—Loffain Rule Co WIZSKD—Loffain Rule Co WIZSKD—Loffain Rule Co Wolf MANIZELD—American Lomber & Treat-ing Co

WOODTEX-Certain-tood Products

WOOD YOUTH Protection Prod-

List of Manufacturers' Names With Complete Addresses Starts on Page D-76 WOOLKOTE Woodville Lime Co WORTHWOOD -- Wooster Products WPA-Western Pine Association WRIGHTEX.—Wright Mig Co WRIGHTFLOW—Wright Mig Co WRIGHTWAY—Wright Mig Co WROUGHT BRASS OR BRONZE-American Cabinet Hardware Corp SHEETS Whe

WW CO-Robinson Clay Product Co WYANDOTTE—American Radiator & Sanitary Corp WYTEFACE-Kouffel & Esser Co

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X-IT—Sullivan Co X-PANIMSEAL—X-Pando Corp X-PANIMTITE—X-Pando Corp X-TITE—Wesco Waterpaints Inc XTRALITE—Marshalltown Trows XTRASTRONG-Samson Cordage

Works
PUNCHES-Parker-Kalon Corp

YALE—Yale & Towns Mfg Co YANKEE—North Brethers Mfg Co YARDLIFT—Clark Equipment Co Indus-YELLOW-END-St Paul Corrugating Co

Rope Co YOLOY - Youngstown Steel & Tube Co YOUNGSTOWN-Mullins Mfg Corp

ZEPHAIR-Hunter Fan & Ventilating Co ZEPHYR-Cree-Dipt Co Inc ZEPHYRPLANE-Skilsaw Inc ZEPHYRS-Cree-Dipt Co Inc ZEROZONE Copeland Refrigeration ZIG-ZAG Stanley Works Dir Devoe & ZING-ALLOY-Inland Steel Products Co ZINCGRIP—Armeo Steel Corp ZINCO—Atlas Tack Corp ZINCO—LITH—Glidden Corp ZIP-IN—Cincinnati Fly Screen Div

Russell (F C) Co ZIP-LIFT-Harnischfeger Corp ZONATILE—Zenelite Co ZOURITE-Kawneer Co

# 1952 American Builder Directory

# SECTION III Manufacturers and Addresses

PRINCIPAL MANUFACTURERS of building products and equipment are listed in this section in alphabetical order. In some instances, the manufacturing organization is listed under the name of a division rather than under the parent company: popular usage served as a guide in these cases. For example, the manufacturer of Chevrolet Trucks is

Chevrolet Motors Div., General Motors Corp., rather than as-

General Motors Corp., Chevrolet Motor Div.

In other cases such as those involving departments of companies, the more popular major name is used as the key to the index. For example, the garage hardware department of the Stanley Works is indexed as follows-

Stanley Works, Garage Hardware Dept.

Care has been taken to make this index as accurate as possible, but the American Builder is not responsible for changes in addresses and other discrepancies.

#### The Names of Manufacturers Who Advertise in American Builder Appear in Boldface

Abard Displays New York 2 N Y Abart Gear & Mactine Co 4834-36 West 16th St Chicago 50 Ill Abart Gear & Machine Co. 48:34-36 West 16th St. Chicago 50: 111

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Acme Appliance Mfg Co 35 S Raymond Ave

Pasadena 1 Calif

Covering & Flooring Co 230 N Elizabeth Acme Ashestos Cotering & Flooring Co. 230 N Elizabeth Chicago 7 III Acme Brick Co. Ft Worth 2 Tex Acme Rulletin & Directory Board Corp. 37 ½ E 12th St. New York 3 N Y.

York 3 N Y Acme Boor Co Queen & Lincoln Sts Houniam Wash Acme Electric Heating Co 1205 Washington Boston 18 Mass Acme Eqnt Co 213 Broadway Muskogee 6kla Acme Flame Control Corp 3051 Rosslyn St Los Angeles 65

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Arms Metal Goods Mfg Co. 2 Orange St. Nowark N.J.
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Arms Whith Lead & Color Was. 8250 St Aubin St. Detroit 11
Mich.

Mich Acotn Canvas Co Philadelphia Pa Acotn Mfg Co Mausfield Mass Acotn Plastic Engineers Inc 177 Broadway New York 7

Display Advertising 1702 West 19th Ave Chicago

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Artine Screw & Mrg. Co. 4258 N Pulaski Rd. Chicago 5 III.
Mak Brick Co. Ada 684a.
Mak II. (Ja. A). Lor Co. Portland 4. Ore.
Maint (Frank) Electric Co. P. O. Box 357. St. Louis 13 Mo.
Mamma Rros Mrg. Co. 1502 W North Are. Pittsburgh Pa.
Adams C. C. Fl. Inc. Fl. Worth Co.

Adams Co Dubuque La Adams Rite Mfg Co 540 W Chevy Chase Dr Glendale 4 Calif ams (8 B) Lumber Co Box 345 Mobile Ala

Adams & Westlake Co Safford St Elkhart

Adapte Co 4102 N 100 St Milwaukee Wis Adec Inc. Sedalia Mo. Address Corp. 2130 E 105th St. Cleveland Office. Addressograph-Multigraph Corp. 1200 Babbit. Cleveland 17 6thic.

Adel Clay Proda Co Des Moines 9 Ia Adelphian Mill 14105 Merchandise Mart. Chicago 54 Ill

Add: Prevision Prods Co. Van Owen & Cleon Sts. Burbush Calif.

Ade-side Co. 37-19 22rd St. Long Island City N Y
Adirondack Loc & Flug Co. Carthage N Y
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Advance Call Wore Co. West College Ave. Appleton Wis
Advance Clipt Mig Co. 4617 S Chicago Ave. Chicago III
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Controls Inc. 2310 Superior Ave. Cleveland 14 Obio. Correctives of Chicago Inc. 333 N. Michigan Ave. hicago 1 III Chicago I III
Air Devices Inc. 20 E 43rd St. New York 17 N Y
Air-King Mfg Corp. Tigard fire
Air Master Corp. 4317 Ravenmond Ase. Chicago III
Air-0-Cel. Co. 22000 Woodward Ave. Detroit 20 Mich
Alrolite Co. Marbetta 0
Air Placement Egypt Co. 2525 Southwest Blid. Kansas City

Air Rectifiers Inc 3734 N. Southport Ave

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ax Building Bracket Co. 1551 Rydalmount Rd. Cleveland
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Aldrich Co. Div Breaze Corp Inc. Wyoming III

Alexander Brothers Lumber Co. Columbus Ga.

Alexander Film Co. Alextic Engineering Div. Colorado.

Syrings Colo.

Alexander Still Co. 970 Milwaukee Ave. Chicago 22 III

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#### American Cabinet Hardware Co 416 S Main St Backford III

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tican Copper & Brass Works Inc 610 E Front St scinnati 2 0

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American Crayan Co Sandusky Ohio
American Creente Works Inc 1307 Dublin St New
Orleans La
American Cressoling Co Inc Columbian Bidg Leutsrille 2 kg
American Cranamid Co 30 Rockefeller Piaza New York
20 N Y

American Device Mfg Co Red Bud III

American Die & Tool Co Inc Reading Pa American Emery Wheel Works 1 Richmond Sipsare Provi-dence 1 R American Enameled Products Co Wankesta Wis American Enamerica Co 2446 Aramingo Ave Pailadel-

The street of th Monica Rivel Los Augeles Cal American Fixture & Mfg Co 2300 Locust Blvd St Louis Mo American Fiange & Mfg Co 30 Rockefeller Plaza New York City 20 N Y American Flexible Conduit Co 35 Scott New Bedford Mass

American Floor Surfacing Machine Co 515 S St Clair St Toledo 3 0

American Fluresit Co 635 Rockdale Ave Cincinnati 27 0 American Fork & Hoe Co Clevoland 15 Ohio American Foundry & Furnace Co 1201 Soper St. Bloomingin Foundry & Mfg Co 1011 Herbert St St Louis

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Brown Go. 150 Gausway St. Boston 14 Mass

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Continental Diamond Fibre Co East Newark 45 Del
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Fengson (W T) Lumber Co. St Louis I Mo.
Ferrita Breutess Duriment Inc. 244 Great Meadown Rd
Fessenden Co. Inc. Townsend Mass
Franklin Park III.
Flat Med Inc. 3801 W Belmont Ave
Franklin Dark III.
Flat Mortal Los Hersenderen N. V.

Fibre Conduit Co. Grangeburg N Y Fibre & Stowell Co. 147 E. Becher St. Milwaukee 7 Wis Finch & McCullouch Autora III. Vinishing Lime Association of Ohio Home Bank Bidg. To-

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Firestone Industrial Products Co. 1200 Firestone Plaway Akron 17 0.
Firestone Plastice Co. Potistown Pa.
Firestone Title & Rubbler Co. 1200 Firestone Plawy Akron Fir Mg. Co. Myrtle Creek OreFire Mg. Co. Myrtle Creek OreFirestone Title Co. 1800 Firestone Plawy Akron
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Firestone A. Hayras Rope & Sicel. Co. 4018 W Lake Chicago.
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Historic Limber Co. Marcola Gre
Fisher Bros Limber Co. Tuccaloosa Als.
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Fisher Lex Berling Co. Inc. Third & Wood Sts. Philadelphia Pa.
Fisher 4 Young Titusville Pa.
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Fisher 14 Will From Work 80 Park Pl. New York 7 N Y.
Fish Tire Div U. S. Rubber Co. 1230 Avo of the Americas
New York 20 N Y.
Filter Tckbrink Br Co. 5633 Tacoup St. Philadelphia 24

P Izathdsons Boiler Co Inc. 101 Park Ave. New York N Y Fawale Equipment Mg Co. 103 Reads St. New York 7 N Y Fame-Seal Cott. 607 Godelaux Bldg. New Orleans 16 La Flame-Seal Cott. 607 Godelaux Bldg. New Orleans 16 La Flash Bridge Co. Holland Mich Flash-Stone Co. Inc. 30 E. Buttenhouse St. Philadelphia 44

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Fletshel Lumber Co 4243 Duncan Are 8t Louis 10 Mo.
Fletshman Lumber Co Fortland Gre
Fleming Mig Co 4985 Fyler Are 8t Louis 9 Mo.
Fleming A Son Inc. 1120 E 12th 8t Dallas 8 Tex
Fletcher-Perry Co 437 Sonth 8t Forestville Cenn
Fletcher Steel Lacing Co 4640 Lexington Chicago 44 III
Flexicul Mig Co 3701 Lorain Cleveland 13 Ghis
Flexicure Co Inc. 1932 E Monument Are Dayton 1.0
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Flyan (Michael) Mfg Co 780 East Godfrey
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Foley Mtg Co 3300 N E Fifth St Minneapolis

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Forther Shingle Co 8 Seattle Wash
Forman Ford & Co 111 E Second St Minneapolis Minn
Formica Co 4814 Spring Grove Ave Cincinnai 32 0
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Fort Pitt Chemical Co 26th & Smallman St Pittsburgh
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Prity-Eight Insulations Inc Thomas & McGee Sts Aurora

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Fox (M. Ewing) Co. Inc. 130th St. & Rider Are. New York
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S. N. Y.

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Foy Paint Co Inc. 1775 Mentor Ave Cincinnati 12 9
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Frost-Stuwe Sales Co. 1713 N Grange Hollswood 28 Califf Frost-Stuwe Sales Co. 1713 N Grange Hollswood 28 Califf Frost Growers Supply Co. Summelle Calif.

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Gabriel Steel Co. 13700 Sherwood St. Detroit 12, Mich Gaffney Brick Co. Gaffney S. C. Bay Wis. Gaines Hardwood Lomber Co. St. Louis Mo. Gairing Tool to betroit Mich. Galbraith (C.C.) & Son Inc. 101 Park PI. New York N. T. Galino Albriel Hody Co. Gallon Olibe Galbraith (C.C.) & Son Inc. 101 Park PI. New York N. T. Gallon Albriel Hody Co. Gallon Olibe Gannon Mig Co. 1448 18th Ave. Rowledged III Garden City Flating & Mig. Co. 1750 N. Ashiband Chicago. 22 III. Gardiner Green City Flating & Mig. Co. 1750 N. Ashiband Chicago. 22 III. Gardiner Wise Co. 2740 Barstow St. Horicon Wis Gardiner Wise Co. 1225 S. Cierco Vicero III. Gardiner Mig. Co. 1225 S. Cierco Vicero III. Gardiner Wise Co. 1225 S. Cierco Vicero III. Garden Wise Co. 1225 S. Cierco Vicero II

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General Air Conditioning Corp 4542 E Dunham St Les Angeles 23 Calif

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meral Engines Co Inc Gloucester City N J Ger

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General Industries Inc 300 S Wayne
General Machine Co Inc 4th & Furnace
General Metalware Co 1401 Central Are
Minnapolis Minn
General Paint Corp Army at Poterto San Francisco 19

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Great Lakes Carbon Corp 18 E 48th St New Great Lakes Steel Corp 3750 Penobscot Bldg Detroit 26 Mich

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Guilderest Corp. 255 W 19th. Chicago. 20 III.
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Hammend Cedar Co. Ldd. Hammend B. C. Calif
Hammend Lamber Co. 417 Montgomery St. San Francisco
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Hausen Maclibery & Supply Co S20 Broadway Eureka
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Harris Hub Bed Sering Co 1313 S 55th Ct Cicero III

Harris Inc 145 N High St Columbus O

Harris (J E) Co Foot of Springe Wesster Ohio

Harris Mc 16 Gerenway at Walnut St Johnson City Tenn

Harris Mr Go Gerenway at Walnut St Johnson City Tenn

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Harris Mr Go Gerenway at Walnut St Johnson City Tenn

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44 101
Harris Proble Fire Doors Inc. 460.8 W 20th Chicago 50 111
Harris Prods Co Inc. Miami Beach Fiz.
Harris Prods Co Inc. Miami Beach Fiz.
Harris Chemical Co. 123 Hobbson Are Jersey City 2 N 32
Hart & Cooley Mig Co 300 E 8th St. Holland Mich.
Hartford Chem. Co. Lest Harriord Com.
Hartford Chem. Com. Co. Lest Harriord Com.
Hart Moisture Gauges Inc. 126 Liberty St. New York 6
N Y.

N S Hart old Burner Die Avery Farm Machy Co Peoris III Hart Products Ine 915 E Kentucky St Louiselli 4 Ky Hart Fordus Ine 915 E Kentucky St Louiselli 4 Ky Hart Sash Holder Co Lexington Mo Hartchern (Stewart) Co 351 Fifth Ave New York 1 N Y Hart-Thompson Lumber Co Barbourville Ky Hartwell Brothers Memphis 7 from Hartwell Brothers Memphis 10 to Castle Hills Corp 1964 Stoyer Ave 2008 Average 10 to Castle Hills Corp 1964 Stoyer Ave 2008 Average 10 to 1920 S Western Ave Torrance Calif

Calif
Harrey Mig Co LaMesa Calif
Harvey Mig Co Racine Wis
Harvey-Whipple Inc 55 Emery St. Springfield Mass
Haskellite Mig Corp 701 Ann St N W Grand

Rapids 2 Mich Haskeil (William H) Mfg Co 20 Commerce St Paw-torkot R I Haslam Lumber Co Haslam Tex Haslett Chute & Conveyor Co 717 Brower Ave Goks 1 Pa Hassall (John) Inc Clay & Oakland Sts

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Pacific Plastic & Mig Co Los Angeles Calif

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Pacific Welvet Products Co. 9075 E. 16th. Los Angeles Calif

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Protective Ventilator Co. 310 W 92nd St. New York N Y Pro-Teet-C Jalousie Corp. 4525 Ponce De Leon Blid. Coral Gables Fiz. Protexal Corp. 73 Market St. Kenilworth 2 N J Protex Weatherstrip Mfg Co. 4508 S Western Ave. Chicago. III.

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St Louis Blow Pipe & Heater Co. Inc. 2000 N 9th St. St.

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Paul Hydraulie Hoist Div Gar Wood Industries Inc 2207
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Paul & Tacoma Lumber Co 1220 St Paul Ave Tacoma
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Regis Paper Co 230 Park Ave New York 17 N Y

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Southern Mill & Mrg Co. Tulsa Okla.
Southern Mills Corp. Oxford Ala.
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#### Southern Pine Lumber Co 304 E Fifth St Toxarkana Ark

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Sterling Hardware Mfg Co 2345 Nelson St

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Super Shingle Co. Exerett Wash
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Super Tot Co. 21450 Hoover Rd. Bertott 13 Mich.
Super-Vent. Co. 905 W North Ase. Chicago 6 Ill.
Supradur Corp. 110 William St. New York N Y.
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Symons Clamp & Mfg Co 4249 Diversey Ave Chicago 39 III eca Falls N Y

Systems Alloy Metals Corp. 316-324 Pearl St. Syracuse 3. N. Y. N Y Syracuse Fire Door Corp. Syracuse N Y Syracuse Twist Brill Co. Grape & Meads Sts. Syracuse N Y

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Tacon Heaters Inc. 137 South St. Providence 3 R.I. Tacoma Export Lumber Co. Tacoma 1 Wash Tacoma Lumber Fabricating Co. Tacoma 1 Wash Tacoma Pigwood Corp. Tacoma Wash Tacoma Pigwood Corp. Tacoma Wash Tacoma Vener & Pigwo

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Technical Oil Div South Tex Cotton Oil Co Houston Tex Technical Supply Co 1911 University Ave Pale Alto Calif Tel-o-Post Co 140 Ash St. Akron 8 0 Temco Inc 4104 Park Ave Nashville Tenn

Temple Lumber Co Pineland Tex Templeton (Herbert A) Lumber Co Portland 5 Ore Templeton Kenly & Co 1020 S Central Chicago 44 III Temanat (G II) Co 2544 N Second St Minneapoli Minn

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Thermador Electrical Mg. Co. 5119 District Bird. Los Angeles Calif.
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Tile-Tex Div Flintkote Co 1200 McKinley Ave Chicago

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Timber Structures Inc Bex 3782 Portland

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Triplex Chemied Laboratories 2603 S. Calumet Chicago
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Triplex Heating Specialities Co. 242-68 Grant St. Peru Ind
Triplex Seres Co. 5300 Grant Are. Cleveland 5.0
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Turner & Stanton Co. Box 25 Norwich Conn.

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Tuttle & Bable Joe 1706 Corbin Ave. New Eritain Conn.

Tuttle's Tite-6n Cement Co. Chicago III.

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Twontieth Century Paint & Varnish Co. 456 Driggs Ave.

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Twin Brank Corp. Carloville Twin

Twin City Brick Co. 1307 Marshall Ave. St. Paul & Minn.

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Air Compressor Co 5300 Harvard Ave Cleveland 0

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York 29 N Y U S Steel Co 525 William Penn Place Pittsburgh 30 Pa U S Steel Prods Co 28 Bockefeller Plaza New York 20 N Y United Steel Fabricators Inc 333 Gasche St Waaster 0

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Van-Packer Corp 209 La Salie St Chicago 4

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Vikon Tile Co Washington N J

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Virginia Metal Preds Corp 60 Hudson St

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Vulcan Radiator Co 26 Francis Ave Hart-

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Ward Befrigerator & Mig Co. 6501 S Alameda. Los Angeles
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Zonolite Insulation Co St Louis 10 Mo Zosel Lumber Co Oroville Wash Zoss Ladder & Mfg Co 4901 gww Macadom Ave Fortland 1 Zurn (J A) Mfg Co Eric Pa

# 1952 American Builder Directory

# SECTION IV **Industry and Allied Professional Trade Associations**

# **An Alphabetical Listing**

PROMINENT INDUSTRY and Professional Organizations and their addresses are alphabetically listed for the convenience of builders, contractors, architects, retail material dealers, and other readers who will find it helpful in securing information concerning local and national groups.

Many building problems dealing with specialized materials can be overcome or diminished by contacting the proper trade association. The Editors of the American Builder feel that this listing can prove to be a valuable addition to this year's directory.

Care has been taken in compiling this listing so that it might be as accurate as possible. However the American Builder cannot be responsible for changes in addresses and other discrepancies.

#### INDUSTRY AND ALLIED PROFESSIONAL TRADE ASSOCIATIONS

Allied Building Metal Industries, 101 Park Avenue, New York, New York, A. W. Nelson, President.

ALUMINUM WINDOW MANUFACTURERS ASSOCIATION, 74
Trunty Place, New York 6, New York, Herbert S. Blake, Ir.,

AMERICAN BLEACHED SHELLAC ASSOCIATION, 70 Pine St.,

American Concrete Institute, 7400 Second Blvd., Detroit, Michigan. Harvey Whipple, Secretary.

American Concrete Pipe Association, 228 N. LaSalle St., Chicago, Illinois, Howard F. Peckworth, Managing Director. American Forest Products Industries, Inc., 1319 Eighteenth St., N. W., Washington 6, D. C. G. C. Wathen, Secretary.

American Gas Association, 420 Lexington Ave., New York 17, N. Y. Alexander Forward, Director.

American Hardware Manufacturers' Association, 342 Madison Ave., New York City, New York, Chas. F. Rockwell, Secretary. American Institute of Real Estate Appraisers of National Association of Real Estate Boards, 22 W. Monroe St., Chicago, Illinois. Har-old U. Nelson, Secretary.

American Institute of Steel Construction, Inc., 101 Park Ave., New York City, New York, V. G. Iden, Secretary.

American Lighting Equipment Association, 1270 6th Ave., New York City, New York. J. W. Milford, Secretary.

American Paper & Pulp Association, 122 East 42nd St., New York, New York, E. W. Tinker, Executive Secretary.

American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pennsylvania. C. L. Warwick, Secretary-Treasurer. American Society of Heating & Ventilating Engineers, 51 Madison Ave., New York City 10, New York, A. V. Hutchinson, Secretary.

American Turpentine Farmers Association Cooperative, 108 West Hill Ave., Valdosta, Georgia. J. Lundie Smith, Jr., Secretary.

American Walnut Manufacturers Association, 666 N. Lake Shore Drive, Chicago 11, Illinois, Burdett Green, Secretary-Manager, American Wood Preservers' Association, 1427 Eye St., Washington, D. C. Horace L. Dawson, Secretary.

D. C. Horace L. Dawson, Secretary.
American Wood Window Institute, 209 Sterick Bldg., Memphis, Tennessee, Clark E. McDonald, Managing Director.

AMERICAN ZINC INSTITUTE, INC., 60 E. 42nd St., New York City 17, New York, Ernest V. Gent, Secretary.

Anthracite Institute, 101 Park Ave., New York 17, N. Y.

Appalachian Hardwood Manufacturers, Inc., 414 Walnut St., Cincinnati 2, Ohio, C. H. Cleudening, Secretary-Manager.

Arkansas Soft Pine Bureau, Boyle Bldg., Little Rock, Arkansas. B. E. Lowry, Executive Secretary.

Lowry, Executive Secretary,
Asbestos Cement Products Association, 509 Madison Ave., New York.
22, New York. Chester C. Kelsey, Manager.
Asphalt Roofing Industry Bureau, 2 W. 45th St., New York City 19,
New York. J. S. Bryant, Manager.
Asphalt Tile Institute. 101 Park Ave., New York 17, New York. C. B.
Whittelsey, Jr., Managing Director.

Associated Equipment Distributors, Inc., 360 N. Michigan Ave., Chicago 1, Illinois. P. D. Herman, Secretary.

Associated General Contractors of America, Inc., Munsey Bldg., Washington 4, D. C. Herbert E. Foreman, Managing Director.

Association of Manufacturers of Woodworking Machinery, c/o Porter Machinery Co., Grand Rapids, Michigan, C. O. Porter, President. Atlantic Millwork Institute, Inc., 122 E. 42nd St., New York City 14, New York, Cliff Melander, Secretary.

Barn Equipment Association, 330 S. Wells St., Chicago 6, Illinois. W. Floyd Keepers, Executive Secretary.

Better Light, Better Sight Bureau, 420 Lexington Ave., New York City 71, New York, G. R. Trumbell, Manager.
Building Material Distributors' Association, 20 N. Wacker Dr., Chicago, Illinois. B. E. Babbitt, Managing Director.

Building Material Exhibitors' Association, 530 Echo Lane, Glenview, Illinois. Richard G. Breeden, Jr., Secretary.

Building Products Institute, 1520 18th St., Washington, D. C. Building Research Advisory Board (National Research Council, National Academy of Sciences), 2101 Constitution Ave., Washington 25, D. C.

CALIFORNIA REDWOOD ASSOCIATION, 576 Sacramento St., San Francisco 11, California. Philip Farnsworth, Manager; Kenneth Smith, President

CANVAS AWNING INSTITUTE, INC. 2937 W. 25th St., Cleveland, Ohio. Walter C. Astrup, president.

Cast Stone Institute, 2135 Queen's Chapel Rd., N. E., Washington, D. C. C. G. Walker, Managing Director,

Cement Institute, 111 West Washington St., Chicago 2, Illinois, A. E. Hjerpe, Secretary.

Clay Products Association, 100 N. LaSalle St., Chicago 2, Illinois. John D. Cook, Secretary.

Clay Sewer Pipe Association, Inc., 1105 Huntington Bank Bldg., Columbus 15, Ohio.

Concrete Masonry Manufacturers' Association, 3256 W. Sixth St., Los Angeles 5, California. Clif Hendrickson, Secretary-Manager. Concrete Reinforcing Steel Institute, 38 S. Dearborn St., Chicago 3,

Convector Manufacturers' Association, c/o American Radiator & Standard Sanitary Corp., 40 W. 40th St., New York City, New York. F. E. O'Callaian, Secretary.

Conveyor Equipment Manufacturers' Association, 1129 Vermont Ave., Washington 5, D. C. R. C. Sollenberger, Executive Vice President. Copper and Brass Research Association, 420 Lexington Ave., New York City 17, New York. T. E. Veltfort, Manager.

Decorative Lighting Guild of America, c/o Foster & Davies, Kieth Bldg., Cleveland 15, Ohio, Don M. Julien, Secretary.

DOUGLAS FIR PLYWOOD ASSOCIATION, Tacoma Bldg., Ta-coma 2, Washington, O. Harry Schrader, Jr., Managing Director. Edison Electric Institute, 420 Lexington Avenue, New York City 17, New York, C. W. Kellogg, President.

Electrical Industrial Truck Association, 3701-H N. Broad St., Phila-delphia 40, Pennsylvania. Wm. Van C. Brandt, Managing Di-

Finishing Lime Association of Ohio, Home Bank Bldg., Toledo, Ohio, L. E. Johnson, secretary.

FIR DOOR INSTITUTE, 1205 Rust Bldg., Tacoma 2, Washington. John O. Harte, Managing Director.

Flat Glass Jobbers' Association, 2140 S. Peoria St., Chicago 8, Illine Harold L. Smith, President.

Foundation for Lathing and Plastering, Room 420, Denrike Bldg., Washington, D. C. E. M. Lurie, 173 W. Madison St., Chicago, Illinois, Director.

Gas Appliance Manufacturers' Association, 60 E. 42nd St., New York City, New York, H. Leigh Whitelaw, Managing Director.

Glazed Brick & Tile Institute, 1520 18th St., Washington, D. C. J. J. Cermak, Secretary.

Gum Turpentine Parmers' Cooperative Association, Vidalia, Georgia.

Gypsum Association, 20 N. Wacker Drive, Chicago 6, Illinois, Lloyd
II. Yeager, Manager.

Hardwood Plywood Institute, 600 S. Michigan Ave., Chicago 5, Illinois. Charles E. Close, Secretary-Treasurer. Indiana Limestone Association, Bedford, Indiana

Insect Wire Screen Cloth Bureau, 74 Trinity PL, New York 6, New York, Ralph W. Bacon, Secretary. Institute of Boiler and Radiator Manufacturers, 60 E., 42nd St., New York City, New York, R. E. Ferry, Manager.

Insulated Siding Association, 530 Echo Lane, Glenview, Illinois. Richard G. Breeden, Jr., Secretary-Manager.

Insulation Board Institute, 111 W. Washington St., Chicago 2, Illinois. J. B. Blackburn, Manager.

Kitchen Guild of America. Merchandise Mart, Chicago, Illinois. W. M. Jennings. Executive Secretary.

Lead Industries Association, 420 Lexington Ave., New York City, New York, Felix E. Wormser, Secretary-Treasurer. Manufacturers' Promotional Service, 522 First National Bank Bildg., Atlanta, Georgia. D. M. Strickland, Secretary.

MAPLE FLOORING MANUFACTURERS' ASSOCIATION, 35 E. Wacker Drive, Chicago 1, Illinois. L. M. Clady, Secretary-Manager, Marble Institute of America, Inc., 108 Forster Ave., Mount Vernon, New York. Romer Shawhan, Managing Director.

Metal Lath Manufacturers' Association, Engineers Bldg., Cleveland 14, Ohio, Donald R. Wadle, Commissioner.

Metal Window Institute, 806 Rowland Bldg., Cheltenham, Pennsylvania. George Hingston, Executive Secretary.
Millwork Cost Bureau, 28 E. Jackson Blvd., Chicago 4, Illinois. O. L. Appleton, Secretary.

National-American Wholesale Lumber Association, Inc., 41 E. 42nd St., New York City, New York, Sid L. Darling, Secretary Managing Director.

National Association of Commission Lumber Salesmen, 201 Roosevelt Bldg., St. Louis, Missouri,

NATIONAL ASSOCIATION OF HOME BUILDERS, 1028 Con-necticut Avc., N. W., Washington 6, D. C. Frank W. Cortright, Executive Vice President; Nicholas Molnar, Secretary. National Association of Ornamental Metal Manufacturers, 209 Cedar Avenue, Washington 12, D. C. O. J. Condon.

National Association of Real Estate Boards, 22 W. Monroe St., Chicago, Illinois. Herbert U. Nelson, Executive Vice President.

National Association of Silo Manufacturers, Norwich, New York, Z. W. Craine, Craine Inc., Secretary. National Association of Wholesalers, 200 Fifth Ave., New York City 10, New York. Chester Kelsey, Secretary.

National Building Granite Quarries Association, Inc., 114 E. 40th St., New York 16, New York.

National Building Material Distributors Association, 20 N. Wacker Dr., Chicago 6, Illinois, E. E. Babbitt, Managing Director.

National Cinder Concrete Products Association, 1600 Arch St., Philadelphia, Pennsylvania. Harry H. Longenecker, Secretary.

National Clay Pipe Manufacturers, Inc., 100 N. LaSalle St., Chicago 2, Illinois, J. D. Cook, Secretary.

National Clean Up and Paint Up Campaign Bureau, 1500 Rhode Island Ave., N. W., Washington, D. C. Ralph W. Emerson, Executive

National Coal Association, 804 Southern Bldg., Washington, D. C. J. D. Battle, Executive Secretary. National Concrete Masonry Association, 38 S. Dearborn St., Chicago 3, Illinois. E. W. Dienhart, Secretary.

National Contract Hardware Association, 420 Madison Ave., New York 17, New York. John R. Schoemer, Secretary.

NATIONAL COTTON COUNCIL OF AMERICA, P. O. Box 18, Memphis 1, Tennessee.

NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIA-TION, 155 E. 44th St., New York City, New York. W. J. Mc-bonald, Managing Director; George B. Cumming, General Secre-

National Foundation for Lathing & Plastering, Inc., 173 W. Madison St., Chicago 2, Illinois. Erwin M. Lurie, National Director. National Glass Distributors Association, 435 N. Michigan Ave., Chicago 11, Illinois. North Storms, Secretary.

National Hardwood Lumber Association, 59 E. Van Buren St., Chicago, Illinois. J. W. McClure, Secretary-Treasurer.

National Industrial Sand Association, 1325 E St., N. W., Washington, D. C. V. P. Ahearn, Executive Secretary.
National Lime Association, 927 15th St., N. W., Washington, D. C. Walter S. Stauffer, President; W. Vernon Brumbaugh, Secretary. National Lumber Manufacturers' Association, 1319 Eighteenth St., N. W., Washington, D. C. R. A. Colgan, General Manager.

National Metalclad Door Association, 550 Elliott Sq., Buffalo 3, New York. National Mineral Wool Association, 1270 Sixth Ave., New York City, New York. Fred H. Sides, Jr., Secretary.

NATIONAL OAK FLOORING MANUFACTURERS' ASSOCIA-TION, 814 Sterick Bldg., Memphis, Tennessee. Henry II. Willins,

National Paint, Varnish & Lacquer Association, Inc., 1500 Rhode Island Ave., N. W., Washington, D. C. R. W. Elton, Secretary,

National Plywood Distributors Association, 20 N. Wacker Dr., Chicago, Illinois, B. E. Babbitt, Managing Director.
National Ready Mix Concrete Association, Munsey Bldg., Washington, D. C. V. P. Ahearn, Executive Secretary.

National Retail Hardware Association, 333 N. Pennsylvania St., In-dianapolis 4, Indiana.

National Retail Lumber Dealers' Association, 302 Ring Bldg., Washington 6, D. C. H. R. Northup, Secretary-Manager.

National Roofing Contractors Association, 315 W. Madison St., cago, Illinois. National Sand & Gravel Association, Inc., Munsey Bidg., Washington, D. C. V. P. Ahearn, Executive Secretary.

National Terrazzo and Mosaic Association, Inc., 711 14th St., N. W., Washington 5, D. C.

National Warm Air Heating & Air Conditioning Association, 145 Pub-lic Square, Cleveland 14, Ohio. George Boeddener, Managing Di-

National Wholesale Hardware Association, 505 Arch St., Philadelphia 6, Pennsylvania. George A. Fernley, Managing Director. National Wholesale Lumber Distributing Yard Association, Inc., 1400 Ridgely St., Baltimore, Maryland. J. Jackson Kidd, Secretary.

National Woodwork Manufacturers' Association, 332 S. Michigan Ave., Chicago 4, Illinois. Ormie C. Lance, Secretary-Manager.

New Freedom Gas Kitchen Bureau, 420 Lexington Ave., New York City, New York, H. Vinton Potter, Director.

Northeastern Lumber Manufacturers' Association, 271 Madison Ave., New York City, New York, R. E. Broderick, Secretary-Treasurer. Northern Hemlock and Hardwood Manufacturers' Association, E. R. A. Bldg., Oshkosh, Wisconsin, O. T. Swan, Secretary.

Northern Pine Manufacturera' Association, 4329 Oakland Ave., Minneapolis 7, Minnesota W. A. Ellinger, Secretary.

Ohio Brick & Tile Institute, 306 Market Ave., N., Canton, Ohio.

Oil Burner Institute, 30 Rockefeller Plaza, New York City, New York.

C. F. Curtin, Secretary.

Open Steel Floring Institute, Inc., 2311 First National Bank Bldg., Pitts-burgh 22, Pa. Oxychloride Cement Association, Inc., 1028 Connecticut Avenu N. W., Washington 6, D. C.

Pacific Clay Products Institute, 703 Ninth & Hill Bldg., Los Angeles 15, California. J. J. Stein, Secretary.

Pacific Lumber Inspection Bureau, Henry Bldg., Seattle, Washington, F. W. Alexander, Secretary Manager.

Pacific Lumber Remanufacturers' Association, Portland, Orego Perlite Institute, 35 W. 53rd St., New York 19, New York. Richard L., Davis, Secretary-Treasurer.

Plastic Wall Tile Manufacturers Institute, 168 N. Michigan Rivd., Chicago, Illinois. Plate Glass Manufacturers' Association of America, First Nation Bank Bldg., Pittsburgh, Pennsylvania, P. A. Hughes, Secretary.

Plumbing & Heating Industries Bureau, 35 E. Wacker Drive Chicago, Illinois, Norman J. Radder, Secretary.

PONDEROSA PINE WOODWORK, 38 S. Dearborn St., Chicago J., Illinois, D. G. Pilkington, General Manager. PORTLAND CEMENT ASSOCIATION, 33 W. Grand Ave., Chi-cago 10, Illinois, C. D. Franks, Vice President and General Man-ager

PREFABRICATED HOME MANUFACTURERS INSTITUTE, 908 20th St., N. W., Washington 6, D. C. Harry H. Steidle,

Manager Producers Council, Inc., 815 15th St., N. W., Washington, D. C. C. H. Mortensen, Executive Secretary.

Propeller Fan Manufacturers' Association, C. Detroit, Michigan. V. C. Shelter, Secretary General Motors Bldg., RED CEDAR SHINGLE BUREAU, 5508 White Bldg., Seattle 1, Washington. W. W. Woodbridge, Secretary-Manager.

RETAIL PAINT & WALLPAPER DISTRIBUTORS OF AMERICA, INC., 319 N. Fourth St., St. Louis 2, Missouri. Erwin E., Douglas, Executive Secretary.

Rubber Manufacturers' Association, Rubber Flooring Manufacturers' Division, 444 Madison Ave., New York City, New York.

SAND-LIME BRICK ASSOCIATION, 2140 Wood St., Saginaw, Michigan, J. Morley Zander, Secretary.

Sanitary Cast Iron Enameled Ware Association, 1108 Clark Bldg., Pittsburgh, Pennsylvania. K. R. Hanson, Secretary. SHELLAC INFORMATION BUREAU OF THE AMERICAN BLEACHED MANUFACTURERS' ASSOCIATION, INC., 65 Pine St., New York City, New York.

Sink & Counter Top Manufacturers' Institute, 514 Park Bldg., Cleve-land, Ohio. R. L. Davison, Secretary.

Southern Hardwood Producers, Inc., Sterick Bldg., Memphis, Tennessee, L. J. Heatherly, Secretary-Manager. Southern Pine Association, Canal Bldg., New Orleans, Louisiana, H. C. Berckes, Secretary-Manager.

Southern Pine Inspection Bureau, Canal Bldg., New Orleans, Louisiana, A. S. Boisfontaine, Manager.

Southern Plywood & Veneer Association, Johnson Bldg., Charlotte, North Carolina, Joseph Gall, Manager.

Southern Sash & Door Jobbers, 209 Sterick Bldg., Memphis 3, Tennessee, Clark E. McDonald, Secretary Treasurer. Southern Wholesale Lumber Association, McMillan Bank Bldg., Livingston, Alabama Robert F. Darrah, Secretary-Manager.

Southern Woodwork Association, 1925 Ponce de Leon Ave., N. E., Atlanta, Georgia. Joseph G. Rowell, Counselor.

STAINED SHINGLE & SHAKE ASSOCIATION, 5527 White Bldg., Seattle, Washington. Joe S. Pearson, Secretary. Steel Kitchen Cabinet Institute, Park Bldg., Cleveland, Ohio, Mr. Tus-cany, Secretary.

Stoker Manufacturers' Association, 307 N. Michigan Ave., Chicago I, Illinois, Marc G. Bluth, Executive Secretary.

STRUCTURAL CLAY PRODUCTS INSTITUTE, 1520 18th St., N. W., Washington 6, D. C. J. J. Cermak, Secretary. TILE COUNCIL OF AMERICA, 10 E. 40th St., New York, New York, Alfred McMillan. Tile Manufacturers' Association, 50 E. 42nd St., New York City, New

Truck Mixer Manufacturers' Bureau, Munsey Bldg., Washington 4, D. C. V. P. Ahearn, Secretary.

United States Savings & Loan League, 221 N. LaSalle St., Chicago, Illinois, Morton Bodish, Executive Vice President.

Venetian Blind Association of America, 435 N. Michigan Blvd., Chi-Vermiculite Association, Inc., 64-67 83rd Place, Rego Park, New York. Wm. S. Elliott, Secretary-Treasurer.

Vermiculite Institute, 208 S. LaSalle Street, Chicago, Illinois.

Wallpaper Institute, 501 Madison Ave., New York 17, New York. W. L. Carver, Secretary.

Weatherstrip Research Institute, 259 Addison Rd., Box 101, Riverside, Illinois, L. G. Klee, Secretary.

West Coast Lumbermen's Association, 1410 S. W. Morrison St., Port-land, Oregon. Harold V. Simpson, Executive Vice President.

West Coast Woods Promotion, 1410 S. W. Morrison, Portland 5, Oregon. Paul E. Kendall, Manager.

gon. Paul E. Kendall, Manager.

WESTERN PINE ASSOCIATION. Yeon Building, Portland, Oregon. S. V. Fullaway, Secretary-Manager.

Wholesale Building Material Division of the National Plywood Distributors Association, 20 N. Wacker Dr., Chicago 3, Illinois. B. E. Babbitt, Managing Director.

Window Glass Manufacturers' Association, 19 West 44th St., New York City, New York, Charles R. Stevenson, Secretary. Woods-for-fenetians Association, Russ Bidg., San Francisco, California, F. M. Binion, Secretary Treasurer.

Wood-Ply Research Foundation, Incorporated, 185 N. Wabash Ave., Chicago I, Illimois, Miss I. M. Crouse, Secretary.

WOOD WINDOW INFORMATION SERVICE, 38 S. Dearborn St., Chicago 3, Illinois, E. W. Ruddick, Manager.

Woodwork Jobbers Service Bureau, 30 N. LaSalle St., Chicago, Illinois, Adolph Pfund, Secretary.

#### LOCAL CHAPTERS OF THE NATIONAL ASSOCIATION OF HOME BUILDERS

#### ALABAMA

Birmingham Association of Home Builders, 215 Comer Bldg., Birmingham, Alabama, J. L. Baswell, Executive Vice President. Tri-Cities Home Builders Association, Shop Pike, Sheffield, Alabama. Hubert II. Daily, Secretary-Treasurer.

Montgomery Home Builders Association, P. O. Box 1224, Montgomery, Alabama. G. C. Dickey, Secretary-Treasurer.

#### ARIZONA

Phoenix Association of Home Builders, Bank of Douglas Bldg., Phoenix, Arizona. Britton Burns, Executive Secretary.

#### ARKANSAS

Arkansas Home Builders, 218 Pyramid Bldg., Little Rock, Arkansas. Miss Lorene Passe, Executive Secretary.

#### CALIFORNIA

Peninsula General Contractors & Builders Association, Inc., 1950 El Camino Real, San Mateo, California, Harry E. Smith, Executive Vice President.

Home Builders Association of Fresno, 1837 Merced St., Fresno, California, Noyes Alexander, Executive Secretary.

Home Builders Institute, Suite 907 315 W. 9th St., Los Angeles, California. Clifford L. Rawson, Executive Secretary.

Building Contractors Association of California, Inc., 115 So. Alvarado St., Los Angeles 4, California. Edward M. Sills, Executive Vice

Associated Home Builders of the Greater East Bay, Inc., 277 W. Mac-Arthur Blyd., Oakland 11, California, John I. Hennessy, Executive Vice President.

General Contractors Association of Contra Costa County, Inc., 1731 Mt. Diablo Blvd., P. O. Box 343, Walnut Creek, California. Frederick C. Kracke, Executive Vice President.

Associated Home Builders of Sacramento, 137 Tivoli Way, Sacramento, California, C. B. Perkins, Secretary-Manager. Marin Builders Association, Inc., Room 26 Cheda Bldg., San Rafael, California, Thomas E. Schaal, Secretary.

Associated Home Builders of San Francisco, Inc., 31 Geary St., Suite 200, San Francisco, California. William E. Gillis, Executive Vice

Home Builders Association of San Joaquin County, 1858 S. Stockton St., Stockton, California, Bill Phillips, President.

#### COLORADO

Colorado Springs Home Builders Association, P. O. Box 206, Colorado Springs, Colorado, John Bonforte, Secretary-Treasurer. Denver Association of Home Builders, 933 Sherman, Denver, Colorado, Eugene R. Miller, Executive Secretary.

#### CONNECTICUT

Greater Bridgeport Builders Association, P. O. Box 458, 265 Sturges Rd., Fairfield, Connecticut. Arnold P. Olson, Executive Secretary. Home Builders Association of Hartford County, Inc., 62 LaSalle Road, W. Hartford, Connecticut. Clayton W. Johnson, Executive Sec-

Home Builders Association of Greater New Haven, 80 Elm St., New Haven 3, Connecticut, William B. Young, Secretary.

#### DELAWARE

Home Builders Association of Delaware, Capitol Trail, Newark, Delaware. Francis E. McCann, Executive Secretary.

#### DISTRICT OF COLUMBIA

Home Builders Association of Metropolitan Washington, Suite 303, 1757 K. St., N. W., Washington, D. C. James W. Pearson, Executive Director.

#### FLORIDA

Daytona Beach Home Builders Association, 914 North Halifax Ave., Daytona Beach, Florida, Hugo Quillian, Secretary.

Home Builders Association of Florida, 244% South Beach St., Daytona Beach, Florida, W. W. Patrick, Secretary.

Home Builders Association of Jacksonville, 217 W. Church St., Jacksonville, Florida, Walter J. Cowart, Executive Secretary.

Contractors & Builders Association of Greater St. Petersburg, 3140 Central Ave., St. Petersburg, Florida, Lewis D. Williams, Executive Secretary.

Builders Association of South Plorida, 220 Miracle Mile, Coral Gables 34, Florida. George S. Miller, Executive Secretary.

Tallahassee Home Builders Association, Capitol Hills, Tallahassee, Florida. Horrie B. Culpepper, President.

#### GEORGIA

Home Builders Association of Atlanta, 312 Volunteer Bldg., Atlanta 3, Georgia. Luther B. Stephens, Executive Secretary.

Home Builders Association of Columbus, Georgia, 1043 Sixth Ave., Columbus, Georgia. C. Ed. Cooper, Jr., Secretary.
Home Builders Association of Savannah, 34 East Bryan St., Savannah, Georgia. J. D. McLamb, President.

#### IDAHO

Idaho Palls Home Builders Association, Corner of So. Water & Oak Sts., Idaho Falls, Idaho. Earl Anderson, President.

#### ILLINOIS

Chicago Metropolitan Home Builders Association, 130 W. Randolph St., Chicago I, Ill. Martin C. Huggett, Executive Vice President. Home Builders Association of Decatur, Illinois, 1950 West Forest, Decatur, Illinois, C. S. Madaus, Secretary.

Peoria Area Home Builders Association, 1905 Prospect Rd., Peoria, Illinois, A. C. Hyde, Secretary.

#### INDIANA

Elkhart Home Builders Association, 2825 South Main St., Elkhart, Indiana. C, A. Huffman, President.

Evansville Home Builders Association, Inc., 610 Court Bldg., Evansville 19, Indiana, M. T. Schick, Executive Secretary.

Home Builders Association of Fort Wayne, 260 Central Bldg., Fort Wayne 2, Indiana. Clem J. Steigmeyer, Director of Public Re-Marion County Residential Builders, Inc., 206 Evans Bidg., 136 No. Delaware St., Indianapolis 4, Ind., G. William Mohr, Executive

Muncie Home Builders Association, 300 Cowing Ave., Muncie, Indiana. George Hirons, Secretary-Treasurer.

South Bend-Mishawaka Home Builders Association, 1111 So. Webster St., South Bend, Indiana. Wm. H. Weist, Secretary.

#### IOWA

Home Builders Association of Cedar Rapids, 2461 1st Ave., S. W., Cedar Rapids, Iowa, R. T. Powell, Secretary.

Home Builders Association of Des Moines, 909 Sixth Ave., Des Moines 14, Iowa, William Weesner, Executive Secretary. Home Builders Association of Mason City, Iowa, First National Bank, Mason City, Iowa, A. M. Halsor, Secretary.

Quad City Association of Home Builders, Rm. 225, Fifth Avenue Bldg., Moline, Ill. Kenneth Shogren, Secretary-Treasurer.

Home Builders Association of Sioux City, 23 W. 17th St., Sioux City Iowa. Syl Myerchin, Secretary-Treasurer.

#### KANSAS

Topeka Home Builders Association, National Bank of Topeka Bldg., Topeka, Kansas, Arnold W. Johnson, Secretary, Wichita Association of Home Builders, 129 N. Market St., Wichita, Kansas, Frank Malone, Secretary-Treasurer.

#### KENTUCKY

Home Builders Association of Lexington, 875 E. High St., Lexington, Kentucky, J. W. Davis, Jr., Secretary.
Associated Home Builders of Louisville, 614 East Broadway, Louisville 2, Kentucky. W. Arthur Sorrell, Executive Secretary.

#### LOUISIANA

Home Builders Association of New Orleans, Inc., 427 Carondelet St., New Orleans 12, Louisiana. Eugene W. Rose, Executive Vice President.

Home Builders Association of Shreveport, Suite B-2, 509 Market St., Shreveport, Louisiana. Larry Ronson, Executive Vice President.

#### MARYLAND

Home Builders Association of Maryland, 7 St. Paul St., Baltimore 2, Maryland, C. Philip Pitt, Executive Secretary,

#### MAINE

Home Builders Association of Maine, 234-A Middle St., Portland 3, Maine. Milan O. Welch, Executive Secretary.

#### MASSACHUSETTS

Home Builders Association of Greater Boston, 7 Water St., Boston 8, Massachusetts. Robert W. Heard, Manager-Director.

Franklin County Builders Association, 54 Petty Plain Rd., Greenfield, Massachusetts, John F. Winseck, Secretary. Springfield Home Builders and Contractors, Inc., 134 Chestnut St., Springfield 3, Massachusetts. William Putnam, Secretary.

Home Builders Association of Worcester, 151 Main St., Worcester 8, Massachusetts. Robert H. Wood, Executive Secretary.

#### MICHIGAN

Michigan Association of Home Builders, 307 American State Bank Bldg., Lansing, Michigan, Mrs. L. M. Saunders, Secretary. Battle Creek Association of Home Builders, 440 Hubbard Rd., Battle Creek, Michigan. Glenn Hanna, Secretary.

Builders Association of Metropolitan Detroit, 1401 Dime Bldg., Detroit 26, Michigan, Earl Doyle, Executive Vice President.

Flint Association of Home Builders, 429 So. Dort Highway, Flint, Michigan, H. J. Rohner, Executive Secretary.

Grand Rapids Home Builders Association, 800 Association of Commerce Bidg., Grand Rapids, Michigan, Henry W. Lightner, Executive Secretary.

Home Builders Association of Kalamaroo, 609 So, Burdick St., Kalamaroo, Michigan. E. McCammon, Executive Secretary.
Lansing Home Builders Association, 1125 So, Pennsylvania Ave., Lansing J., Michigan. E. P. R. Boynton, Executive Secretary.

Saginaw Valley Builders Association, 810 East Genesee St., Saginaw, Michigan, W. T. Nagle, Secretary.

Tri-Cities Builders Association, Spring Lake, Michigan, Albert Jordon, Secretary.

Washtenaw County General Contractors, Inc., P. O. Box 368, Ann Arbor, Michigan, Wm. M. Brown, Secretary-Treasurer,

#### MINNESOTA

Minneapolis Home Builders Association, 1750 Hennepin Ave., Rm. B-15, Minneapolis 3, Minnesota. Lawrence W. Nelson, Executive Secretary.

St. Paul Home Builders Association, 79 Western Ave., Commodo Hotel, St. Paul 2, Minnesota. A. L. Keffer, Executive Director.

#### MISSISSIPPI

North Delta Home Builders Association, Box 634, Clarksdale, Mississippi, R. C. Kremser, Secretary.

Greenville Chapter of NAHB, Allen-McKee Lumber Co., Greenville, Mississippi, James McKee, Secretary Treasurer.

Home Builders Association of Jackson, Inc., 108 Moss Ave., Jackson, Mississippi. Woodrow F. Cole, President.

#### MISSOURI

Home Builders Association of Greater Kansas City, 4638 J. C. Nichols Parkway, Kansas City, Missouri, James L. Hutton, Executive Secretary.

Home Builders Association of Greater St. Louis, 8843 Forsythe Blvd., Clayton 5, Missouri, Laurence E. Delmar, Executive Secretary.

#### NEBRASKA

Home Builders Association of Lincoln, 421 No. 9th St., Lincoln, Nebraska, W. F. Hoppe, Jr., Secretary.
 Omaha Home Builders Association, 1805 Harney St., Omaha 2, Nebraska, A. B. Parks, Executive Secretary.

#### NEW HAMPSHIRE

Builders Association of New Hampshire, 413 Blodget St., Manchester, New Hampshire, Roland H. Breton, Socretary-Treasurer.

#### **NEW JERSEY**

HBA of Somerset & Morris Counties, Madisonville Rd., Basking Ridge, New Jersey. Frank Van Aradale, Secretary.

New Jersey Home Builders Association, 171 Main St., Hackensack, New Jersey. Clarence H. Von Dreble, Executive Secretary.

Atlantic Home Builders Association of New Jersey, 7714 Ventnor Ave., Margate City, New Jersey. Eddy Shaman, Secretary. Home Builders Association of Metropolitan New Jersey, Military Park Hotel, Suite 733, 16 Park Place, Newark 11, New Jersey, Wil-liam J. Gaynor, Executive Director.

Home Builders Association of Northern New Jersey, 171 Main St., Hackensack, New Jersey. Clarence J. Von Drehle, Executive Di-

New Jersey Shore Builders Association, P. O. Box B-5, Sea Girt, New Jersey, Arthur C. Turner, President.

Home Builders Association of Raritan Valley, P. O. Box 350, New Brunswick, New Jersey, Samuel S. Himelstein, Secretary.

Home Builders League of South Jersey, 622 Cooper St., Camden 2, New Jersey, Harry Smith, Secretary, Home Builders Association of Mercer County, 143 E. State St., Tren-ton, New Jersey, A. M. Bernstein, Secretary,

#### **NEW MEXICO**

Albuquerque Home Builders Association, 1225 So. Yale St., Albuquerque, New Mexico. L. R. Vander Kamp, Executive Secretary.

#### NEW YORK

NEW YORK

Albany, New York, Joseph F. Degman, Executive Secretary,
Albany, New York, Joseph F. Degman, Executive Secretary,
Chemung Valley Home Builders Association, 57 East Market St.,
Corring, New York, Mason J. Rower, Executive Secretary,
Gen St., Chem. Secretary,
Ork, R. G. Locke, Acting Secretary,
Long Island Home Builders Institute, Inc., 143 Fulton Ave., Hempstead, L. I., New York, O. J. Hartwig, Executive Secretary,
Niagars Palls Home Builders, Insc., Niagars Bildg., Niagars Falls,
New York, Anthony P. Soluri, Executive Secretary,
The Niagars Fontier Builders Association, Inc., 1106 Morgan Bildg.,
Buffalo 2, New York, John C. Donovan, Executive Vice President.

The Better Builders Association of Onondaga, Inc., 2627 South Salina St., Syracuse, New York, Mrs. Arlene S. Woodmansee, Acting

Rochester Home Builders Association, 240 Powers Bldg., Rochester 14, New York, Wm. J. Hill, Executive Secretary.

Home Builders Association of Schenectady, De Winter Bldg., Nether lands Village, New York, Louis Lafforthun, Executive Secretary

lands Village, New York, Louis Lattorthuin, Executive Secretary, New York Home Builders Association, 348 Coldwater Road, Rochester 11, New York, Joseph Entress, Secretary. Southern Tier Home Builders Association, 1222 Dorothy St., Binghanton, New York, Curtis Booth, Secretary. Home Builders Association of Westchester, Inc., 9 South First Ave., Mount Vernon, New York, James E. Cook, Secretary.

#### NORTH CAROLINA

Charlotte Home Builders Association, P. O. Box 3007, Charlotte, North Carolina, J. C. Purnell, Jr., Secretary-Treasurer. Sanford Association of Home Builders, First Federal Savings & Loan Association, Sanford, North Carolina, H. A. McNeely, Secretary.

#### OHIO

Home Builders Association of Greater Akron, 651 1st Central Tower Bldg., Akron 8, Ohio, A. J. Alexander, Secretary Treasurer, Elyria Home Builders Association, 134 Kenwood St., Elyria, Ohio, L. H. Popp, Executive Secretary.

L. H. Popp, Executive Secretary.

Home Builders Association of Stark County, Ohio, Inc., 243 Montroet
Ave., N. W., Canton, Ohio, Robert Colaner, Executive Secretary,
Home Builders Association of Greater Cincinnati, 907 Union True
Bildg., Cincinnati 2, Ohio, Earl DeLaittre, Executive Secretary,
Home Builders Association of Greater Cleveland, Allerton Hotel, R
13th & Chester Ave., Cleveland, Ohio, Jerry Madigan, Executive
Director.

Columbus Home Builders Association, 16 E. Broad St., Suite 130 Columbus, Ohio. Miss Lillian Tupes, Executive Secretary.

Home Builders Association of Butler County, 375 Columbia Roa Hamilton, Ohio. John C. Hicks, Secretary. Lorain Home Builders Association, 388 Franklin Ave., Amherst, Oh Carl Springer, Executive Secretary.

Home Builders Association of Mahoning Valley, 55 Aylesboro Ave., Youngstown Ohio, C. E. McGranahan, Executive Secretary.

Home Builders Association of Mansfield, Box 191, Lexington, Ohio Harley Watkins, Secretary.

Home Builders Association of Marion, 613 Oak St., Marion, Ohio J. C. #allinger, Secretary. Montgomery County Builders Association, 127 S. Main St., Dayton 2 Ohio. Curt Miller, Executive Secretary.

Northwestern Ohio Contractors and Builders Association, 1582 Virginia Ave., Lima, Ohio, N. A. Buckmaster, Secretary, Ohio Home Builders Association, 5 East Long St., Columbus, Ohi A. H. Falace, Executive Secretary.

Home Builders Association of Sandusky, 227 McDonough St., Sandusky, Ohio. Wm. R. Henry, Secretary.

Clark County Home Builders Association, 1337 N. Plum St., Sprinfield, Ohio. E. V. Enterline, Secretary.

Toledo Association of Home Builders, Inc., 332 Spitzer Bldg., Toled Ohio, Guy Roberts, Executive Vice President.

#### OKLAHOMA

Ada Chapter of NAHB, P. O. Drawer 127, Ada, Oklahoma, Erwin T. Hovis, Secretary-Treasurer.

Enid Home Builders Association, 209 Knox Bldg., Enid, Oklahoma Herman Kurz, President. Home Builders Association of Lawton, 4151/2 'D' Ave., Lawton, Okla-homa, Irvin C. Mattoon, Executive Officer.

Miami (Okla.) Chapter of NAHB, 201 So. Main, Miami, Oklahoma. Mrs. Fred Ernst, Secretary-Treasurer.

Home Builders Association of Muskogee, 226 Wall St., Muskogee, Oklahoma, J. A. Hurt, Secretary-Treasurer.

Norman Home Builders, Association, 623 N. Forter, Norman, Okla-homa, James R. Adair, Secretary-Treasurer, Bartlesville Home Builders, P. O. Box 778, Bartlesville, Oklahoma, Myrtle Barlow, Secretary-Treasurer.

The Oklahoma State Home Builders Association, Room 328, Biltmore Hotel, Oklahoma City, Oklahoma. Gus Fields, Executive-Director.

Brotel, Oklahoma City, Oklahoma, Gus Fields, Executive-Director, Oklahoma City Home Bulders Association, Room 328, Biltmore Hotel, Oklahoma City, Oklahoma, Gus Fields, Executive Secretary, Ponca City, Chapter of NAHB, 107 Whitworth Ave., Ponca City, Oklahoma, Roger A. Hawk, Secretary-Treasurer.
Stillwater Chapter of NAHB, Box 248, Stillwater, Oklahoma, Leonard G. Herron, Jr., Secretary.

# Tulsa Home Builders Association, Inc., 1035 Hunt Bldg., Tulsa, Oklahoma, Mrs. George Wilder, Executive Secretary.

#### OREGON

Master Builders of Oregon, Portland Coke & Gas Co., Public Service Bildg., Portland, Oregon. O. A. Stevenson, Secretary-Treasurer. Portland Home Builders Association, 318 Platt Bildg., Portland 5, Oregon. John M. Richardson, Executive Secretary.

#### PENNSYLVANIA

Home Builders Association of Allegheny County, 1105 Standard Life Bldg., Pittsburgh 22, Pennsylvania, H. Wm. Hanna, Jr., Execu-tive Lifector.

Home Builders Association of Fayette County, 62 Race St., Union-town, Pennsylvania, Russell Dills, Secretary.

Home Builders Association of Greater Johnstown, Route 4, Johnstown, Pennsylvania. James M. Custer, Secretary.

Home Builders Association of Northwestern Pennsylvania, Suite 311, Security Peoples Bank Bldg., Erie, Pennsylvania, Ralph W. Delancey, Executive-Director.

Lehigh Valley Home Builders Association, 1136 Cedar Crest Blvd., Allentown, Pennsylvania. Roma Dante, Secretary.

Monroe County Builders and Contractors Association, Marshalls Creek, Pennsylvania. Harvey W. Huffman, Secretary.

Home Builders Association of Philadelphia and Suburbs, Robinson Bldg., 42 So. 15th St., Philadelphia, Pennsylvania. Wm. E. Johnson, Executive Vice President.

Home Builders Association of Shenango Valley, P. O. Box 303, Sharon, Pennsylvania, Robert G. Hentsche, Secretary.

#### PUERTO RICO

Home Builders Association of Puerto Rico, Box 485, San Juan, Puerto Rico, Louis A. Torregrosa, Secretary.

#### RHODE ISLAND

Home Builders Association of Rhode Island, 71 Jackson St., Rm. 201, Providence, Rhode Island. Franklin A. Hurd, Executive Secretary.

#### SOUTH CAROLINA

Piedmont Association of Home Builders, P. O. Box 957, Greenville, South Carolina. Waco F. Childer, Jr., Secretary.

#### TENNESSEE

Home Builders Association of Chattanooga, 3823 Lerch St., Chattanooga, Tennessee, John R. Barnes, Secretary.

Home Builders Association of Knoxville, R. 6, Holston Hills, Knoxville, Tennessee. John W. Card, Secretary-Treasurer.

Home Builders Association of Memphis, 640 Sterick Bldg., Memphis J., Tennessee. Frank C. Steudlein, Executive Vice President.

Nashville Home Builders Association, 606 Commerce Union Bank Bldg., Nashville, Tennessee, Marion F. Thomas, Jr., Executive

South Texas Home Builders Association, 1001 Wilson Bldg., Corpus Christi, Texas. F. M. Hutchens, Executive Vice President.

Home Builders Association of Abliene, Texas, 2401 No. 14th St., Abliene, Texas. Arthel Henson, Secretary Treasurer.

Austin Home Builders Association, 204 Naile Bldg., Austin, Texas. Roger Newhall, Secretary-Treasurer.

Home Builders Association of Dallas, Home Builders Audit inium, 2109-15 Live Oak, Dallas, Texas. Grover A. Godfrey, Executive Vice President.

Home Builders Association of El Paso, Chamber of Commerce, 310 San Francisco St., El Paso, Texas. Robert H. Crockett, Execu-

Home Builders of Fort Worth, 356 Majestic Bidg., Fort Worth, Texas, Henry L. Geddie, Executive Secretary. Houston Home Builders Association, 537 Kress Bldg., Houston 2, Texas, H. T. Fenderbosch, Executive Secretary.

Home Builders Association of Lubbock, 1300 4th St., Lubbock, Texas. Sam Lemons, President.

Home Builders Association of Sabine Area, 2471 Hazel Ave., P. O. Box 2844, Beaumont, Texas. Clemence Morrogh, Executive Secre-

Permian Basin Home Builders Association, 1300 West Wall St., Midland, Texas. Jim Kelly, Executive Secretary.

Home Builders Association of San Angelo, 1909 W. Beauregard, San Angelo, Texas. Dean R. Chollar, Secretary-Treasurer. San Antonio Home Builders Association, 1411 Majestic Bldg., San Antonio 5, Texas. F. Clay McGaughy, Executive Vice President.

Texas Association of Home Builders, Inc., 512 Perry-Brooks Bldg., Austin, Texas. Thomas D. Caldwell, Executive Secretary.

Texas Panhandle Home Builders Association, P. O. Box 2307, Amarillo, Texas. Miss Lois McSweeney, Executive Secretary.

#### UTAH

Utah Home Builders Association, 39 Exchange Place, Salt Lake City 1, Utah. Earl P. Staten, Executive Vice President.

Utah Valley Home Builders, 47 No. University Ave., Provo, Utah. George B. Carter, Executive Secretary.

#### VIRGINIA

Home Builders Association of Richmond, 2403 W. Main St., Richmond, Virginia. C. G. Yagel, Executive Secretary.

#### WASHINGTON

Seattle Master Builders, 1930 Sixth Ave., Seattle 1, Washington. V. H. Dent, Executive Vice President.

Master Builders of Washington, 2311 W-95, Seattle 7, Washington. Samuel Anderson, President.

Home Builders Association of Spokane, 546 Peyton Bidg., Spokane 8, Washington, Robert W. Twigg, Executive Secretary.

Tacoma Master Builders Association, 11031/2 Division St., Tacoma 3. Washington, J. Howard Kane, Executive Vice President.

#### WEST VIRGINIA

Home Builders Association of Charleston, P. O. Box 2401, Charleston 29, West Virginia. Frank L. Pile, Secretary.

#### WISCONSIN

Madison Builders Association, Room 505 Cantwell Bldg., 121 So. Pinckney St., Madison 3, Wisconsin. L. E. Gerretson, Executive Secretary.

Milwaukee Builders Association, 259 East Wells St., Suite 555, Milwaukee 2, Wisconsin, Roy F, Healy, Executive Vice President.

Rock County Builders Association, 1200 No. Bluff St., Janesville, Wisconsin. Wm. Sanford, Secretary.

Wisconsin Builders Association, 905 Hackett St., Beloit, Wisconsin. Glenn Webermeier, Secretary. Racine-Kenosha Home Builders Association, 610 Main St., Racine, Wisconsin. Arthur J. Morrissey, Jr., Executive Secretary.

#### RETAIL LUMBER ASSOCIATIONS

Arizona Retail Lumber & Builders Supply Association, 414 Luhrs Bldg., Phoenix, Arizona. Gus M. Michaels, Secretary-Manager. Arkansas Association of Lumber Dealers, 727 Pyramid Bldg., Little Rock, Arkansas. E. DeMott Henderson, Secretary.

Building Material Merchants of Georgia, 1925 Ponce de Leon Ave., N. E., Atlanta, Georgia. Joseph G. Rowell, Counsellor.

Carolina Lumber & Building Supply Association, 114 Builders Bldg., Charlotte, N. Carolina, E. M. Garner, Secretary. Central Kanasa Lumbermen's Association, Salina, Kansas, M. L. Douer, Secretary. Central Missouri Association of Retail Lumber Dealers, Jefferson City, Missouri, H. Guhleman, Secretary.

Florida Lumber & Millwork Association, 2218 Edgewater Drive, Orlando, Florida. Mrs. Marie M. Bennett, Secretary. Illinois Lumber & Material Dealers' Association, 410 S. 5th St., Springfield, Illinois. J. D. McCarthy, Secretary.

Springheid, Illinois. J. D. McCarthy, Secretary.
Independent Retail Lumber Dealers' Association, 303 Wesley Temple
Bldg., Minneapolis, Minnesota, Edwin W. Elmer, Secretary.
Indiana Lumber & Builders' Supply Association, 219 N. Pennsylvania
St., Indianapolis 4, Indiana, Carl W. Nagle, Secretary.
Intermountain Lumber Dealers' Association, 712 Newhouse Bldg.,
Salt Lake City I, Utah. C. W. Nortz, Secretary.
Iowa Retail Lumbermen's Association, 1912 Grand Avenue, Des
Moines 14, Iowa. W. H. Badeaux, Secretary.

Iowa Retail Lumbermen's Association, 1912 (Moines 14, Iowa, W. H. Badeaux, Secretary. Kentucky Retail Lumber Dealers' Association, Lebanon, Kentucky. Donald A. Campbell, Secretary.

Louisiana Building Material Dealers' Association, 528 Florida St., Baton Rouge, Louisiana. R. Needham Ball, Secretary-Manager.

Lumber & Supply Dealers' Council of Georgia, 1925 Ponce de Leon Ave., N. E., Atlanta, Georgia, J. G. Rowell. Lumber Dealers' Association of Connecticut, P. O. Box 1662, New Haven, Connecticut, William P. Beach, Secretary.

Lumber Dealers' Association of Western Pennsylvania, Plaza Bldg., Pittsburgh 19, Pennsylvania. R. F. McCrea, Secretary. Lumber Merchants' Association of Northern California, 214 Front St., San Francisco, California. Jack Pomeroy, Executive Vice President.

Lumber Trade Association of Cook County, 30 North LaSalle St., Chicago 2, Illinois. Phoebe B. Hess, Secretary.

Lumbermen's Association of Texas, Second National Bank Bldg., Houston 2. Texas, Gene Ebersole, Executive Vice President.

Maine, Retail Lumber Dealers' Association of, P. O. Box 236, Lewiston, Maine. Ralph E. Jordan, Secretary-Treasurer.
Maryland, Retail Lumber Dealers Association of, c/o Lee Lumber & Supply Co., Baltimore, Maryland. Lee J. Etelson.

Massachusetts Retail Lumber Dealers' Association, c/o W. E. Atkinson Co., Newburyport, Massachusetts. Willis F. Atkinson, Secre-

Michigan Retail Lumber Dealers' Association, 1009 Bank of Lansing Bldg., Lansing, Michigan, Hunter M. Gaines, Secretary. Middle Atlantic Lumbermen's Association, 1528 Walnut St., Philadel-phia 2, Pennsylvania. Robert A. Jones, Secretary.

Mississippi Retail Lumber Dealers' Association, P. O. Box 1968, Jackson 115, Mississippi E. B. Lemmons, Secretary. Montana Retail Lumbermen's Association, 107 E. Main, Missoula, Montana Retail Lumbermen's Association, 107 E. Main, Missoula, Montana, W. J. Howard, Secretary-Manager. Mountain States Lumber Dealers' Association, Colorado National Bank Hildg., Denver 2, Colorado, Joseph V. Smith, Secretary-Manager. Nebraska Lumber Merchants' Association, Terminal Bidg., Lincoln 8, Nebraska Lumber Merchants' Association, Terminal Bidg., Lincoln 8, Nebraska Phil Runion, Secretary.

New Hampshire Retail Lumbermen's Association, Meredith, New Hampshire, Harold Greatorex, Secretary. New Jersey Lumbermen's Association, 1060 Broad St., Newark 2, New Jersey. Edw. C. Frick, Secretary.

New York Lumber Trade Association, Grand Central Terminal, New York, New York. Whitney F. Harris, Secretary-Manager.

North Dakota Retail Lumbermen's Association, P. O. Box 534, Fargo, North Dakota. Maynard A. Finch. Secretary.

Northeast Missouri Lumbermen's Association, Columbia, Missouri. O. W. Hetrick, Secretary-Treasurer. Northeastern Retail Lumbermen's Association, 339 East Avenue, Valley Cadillac Bidg., Rochester 4, New York. Paul S. Collier, Secretary-Manager.

Northern Indiana and Southern Michigan Retail Lumber Dealers Association, South Bend, Indiana. Robert Chamberlain, Secretary. Northwest Missouri Retail Lumbermen's Association, c/o Hyde Valley Lumber Co., St. Joseph, Missouri. Elmer Ford, Secretary.

- Northweatern Lumbermen's Association, Fourth Avenue South, Minneapolis 2, Minnesota. W. H. Badeaux, Secretary.

  Ohio Association of Retail Lumber Dealers, Green and Market Streets, Xenis, Ohio. Findley M. Torrence, Secretary.

  Oklahoma Lumbermen's Association, Leonhardt Bidg., Oklahoma City, Oklahoma W. M. Morgan, Manager.

  Oregon Retail Lumbermen's Association, Control Street, Portland, Oregon, C. A. Farisa, Secretary.

  Russell Street, Portland, Oregon, C. A. Farisa, Secretary.

  Rhode Island Lumber Dealers' Association, c/o E. E. Smith Lumber Company, Inc., Providence, R. I. J. Marshall Peters, Secretary.

  South Dakota Retail Lumbermen's Association, c/o H. W. Ross Lumber Co., Sioux Falls, South Dakota. Rajh J. McNerney, Secretary-Treasurer.

  Souther Missouri, Retail Lumber Dealers' Association, Hayti, Missouri Retail Lumber Retail Lumber Dealers' Association, Hayti, Missouri Retail Lumbe
- tary-Treasurer.
  Southern Missouri Retail Lumber Dealers' Association, Hayti, Missouri, W. T. Nethery, Secretary.
  Southern California Retail Lumbermen's Association, 111 West Seventh St., Los Angeles, California, Orrie W. Hamilton, Secretary-St., Los Manager
- Southwest Missouri Retail Lumber Dealers' Association, Springfield, Missouri. Grover McSpadden, Secretary.

- Southwestern Iowa Retail Lumbermen's Association, c/o Crawford Lumber Co., Council Bluffs, Iowa. J. Stivers, Secretary-Treasurer.
- Southwestern Lumbermen's Association, R. A. Long Bldg., Kansas City 6, Missouri. Allan T. Flint, Secretary Manager.
- Tennessee Building Material Association, 711 Broadway, N. Knoxville 17, Tennessee, R. O. Brownlee, Secretary-Manager.
- Texas Line Yard Retail Lumber Dealers' Association, Waco, Texas. George H. Zimmerman, Secretary.
- Vermont Retail Lumber Dealers' Association, c/o E. R. Wiggins Builders Supplies, Chester, Vermont, Walter Kangas, Secretary. Virginia Building Material Association, 3303 Monument Avenue,
- Richmond 21, Virginia. Harris Mitchell, Secretary-Manager.
- Western Retail Lumbermen's Association, 1319 W. Nickerson, Scattle 99, Washington. W. C. Bell, Managing Director.

  West Virginia Lumber & Builders' Supply Dealers' Association, Box 1389, Fairmont, West Virginia, Sam H. Diemer, Secretary,

  Wisconsin Retail Lumbermen's Association, 501 Milwaukee Gas Company Bldg., Milwaukee 2, Wisconsin, H. P. McDermott, Secretary.

# 1952 American Builder Directory SECTION V

# Participating Communities in 1951 National Home Week

An Alphabetical Listing by States

ISTED ALPHABETICALLY by states and sponsors in this section are those communities which responded to American Builder's roll call of all cities and towns which observed National Home Week in 1951. Their efforts in showing new homes, home remodeling, and building materials stimulated and renewed great interest in home ownership and home maintenance.

Alahama

Birmingham Association of Home Builders

Home Builders Institute (Los Angeles) Associated Home Builders of the Greater East Bay, Inc. (Oakland)

Associated Home Builders of Sacramento Peninsula General Contractors and Builders Associa-

tion, Inc. (San Mateo) General Contractors Association of Contra Costa County, Inc. (Walnut Creek)

Connecticut

Greater Bridgeport Builders Association Home Builders Association of Hartford County (West Home Builders Association of Greater New Haven

District of Columbia

Home Builders Association of Metropolitan Washington

Chicago Metropolitan Home Builders Association H. H. Troup Lumber Co. (Kankakee) Quad City Association of Home Builders (Moline) New Athens Lumber Co. (New Athens)

Marion County Residential Builders, Inc. (Indianapolis)

Home Builders Association of Cedar Rapids Home Builders Association of Des Moines

Wichita Association of Home Builders

Home Builders Association of New Orleans

Maryland

Home Builders Association of Maryland (Baltimore)

Massachusetts

Home Builders and Contractors Association, Inc. Springfield) Master Home Builders Association of Worcester

Flint Association of Home Builders Grand Rapids Home Builders Association

Minnesota

Minneapolis Home Builders Association St. Paul Home Builders Association

Home Builders Association of Greater Kansas City Home Builders Association of Greater St. Louis

Atlantic Home Builders Association of New Jersey Builders Association of Metropolitan New Jersey (Newark)

This listing is not necessarily complete, but is as complete as the record to date permits. Its purpose is not only to give credit where credit is due for the highly successful National Home Week of 1951, but to provide a source list of experienced Home Week sponsors upon whose work communities which have not yet participated might base their plans for getting into the Home Show Parade for 1952.

New York

Home Builders Association of Albany Niagara Frontier Builders Association (Buffalo) Long Island Home Builders Institute, Inc. Home Builders Association of Westchester, Inc. (Mt. Rochester Home Builders Association The Better Builders Association of Onondaga, Inc.

(Syracuse)

Home Builders Association of Lincoln Omaha Home Builders Association

North Carolina

Coman Lumber Co. (Durham)

Ohio

Home Builders Association of Stark County, Inc. Canton) Home Builders Association of Greater Cincinnati Home Builders Association of Greater Cleveland Columbus Home Builders Association Montgomery County Builders Association (Dayton) Sandusky Home Builders Association Toledo Home Builders Association

Portland Home Builders Association

Pennsylvania

Home Builders Association of Metropolitan Pittsburgh

Home Builders Association of Rhode Island (Providence)

Tennessee

Home Builders Association of Memphis Nashville Home Builders Association

Texas Panhandle Home Builders Association (Amar-Home Builders Association of Dallas Houston Home Builders Association Home Builders Association of San Angelo San Antonio Home Builders Association

Utah

Utah Home Builders Association (Salt Lake City)

Virginia

Richmond Home Builders Association

El Monte Lumber and Fuel Co. (Elma) Seattle Master Builders
Home Builders Association of Spokane, Inc.
Tacoma Master Builders Association

Wisconsin

Rock County Builders Association (Beloit) Milwaukee Builders Association Racine-Kenosha Home Builders Association TRADE MARK

and its manufacturing divisions make OVERHEAD DOOR CORPORATION OVERHEAD DOOS TRADE MARK

CORPORATION

Hartford City, Indiana, U. S. A. MIRACLE WEDGE.\*

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CORTLAND, NEW YORK ORLANDMA CITY, ORLANDMA

MANUFACTURING DIVISIONS

POETIAND, OREGON LEWISTOWN, PENNSYLVANIA DALLAS, TEXAS

TRADE MARK

SALT SPRAY STEEL \*

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The Home Buyer is naturally impressed with the "extras." National Storm Sash Adjusters add strong customer appeal to the house without materially affecting the over-all cost.

No. 85 Storm Sash Adjuster Set — Holds sash securely in position either open or closed. No rattling. 5-inch and 10-inch sizes. Made entirely of steel. Japanned or Cadmium finish. Packed one pair — one right and one left — in an envelope, with 1x7 screws.



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No. 86 Nois-Less Storm Sash Adjuster Set — Locks sash securely in closed position. Top window sash can be lowered all the way down without interference from the Adjuster. Size, 12 inches over all. Set is packed in a box. Consists of one right, one left and one No. 200 Pull. Cadmium finish only.



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